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Final

Plan of Development for the Proposed Toquop Energy Project

Prepared for

Bureau of Land Management
Ely Field Office
Las Vegas Field Office

March 2004

Prepared by

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February 2004

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Denver, CO 80225

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Acronyms

BLM	U.S. Bureau of Land Management
BMP	Best Management Practice
CIC	Compliance Inspection Contractor
CWA	Clean Water Act
EIS	Environmental Impact Statement
gpm	gallon per minute
kV	kilovolt
MW	megawatt
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NLRC	Nevada Land and Resource Company
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
POD	Plan of Development
ROW	right-of-way
SPCCP	Spill Prevention Control and Countermeasures Plan
SOP	Standard Operating Procedure
USACE	U.S. Army Corps of Engineers
WSCC	Western Systems Coordinating Council

1.0 Project Overview and Purpose and Need

This Draft Plan of Development (POD) has been prepared for the Ely and Las Vegas Field Offices of the U.S. Bureau of Land Management (BLM) in support of the application for Right-of-Way (ROW) grants for the proposed Toquop Energy Project in southern Nevada. Much of the information in this document is referenced from the *Proposed Toquop Land Disposal Amendment to the Caliente Management Framework Plan and Final Environmental Impact Statement for the Toquop Energy Project* completed in March 2003. This POD presents information describing the Toquop Energy Project and associated ROWs; facility design features; construction; operation, maintenance and abandonment; and environmental resource protection and compliance monitoring.

The Proposed Action and alternatives evaluated in the EIS were developed in response to a proposal by Toquop Energy, Inc. (Toquop Energy) to construct and operate a maximum 1,100-megawatt (MW) natural gas-fired electric power generating plant. The plant and associated features would be located in Lincoln County in southern Nevada on public lands presently managed by the Ely Field Office of the BLM. A portion of the existing access road from Interstate 15 (I-15) to the project area is within the management of the Las Vegas Field Office. The power plant would require connections to natural gas, electric transmission, water, and site access facilities. (See Figure 1)

The BLM would issue the necessary ROWs for the construction and operation of the Toquop Energy Project and related facilities. ROWs that cover a larger footprint would be required initially to accommodate construction activities that include drilling, trenching, paving, and material/equipment staging. Permanent ROWs would be necessary for the long-term operation and maintenance of all facilities located on BLM-managed public land.

1.1 Purpose

The proposed plant would generate electrical power at competitive costs for use by consumers to ease the near- and long-term shortages of power in the western United States. The proposed project would contribute to meeting the demand for power in the Western Systems Coordinating Council (WSCC) service area, including the Las Vegas area, and would also contribute to meeting the capacity and annual energy requirements for the remainder of the Arizona-New Mexico-southern Nevada power area.

The project would provide economic benefits to Lincoln County, Nevada, which would provide opportunities for an increased tax base and increased employment opportunities.

The project would provide the BLM with a mechanism for acquiring a desirable parcel of private land in the Pah Rah Range in northwestern Nevada and would facilitate public land management by the BLM by creating contiguous tracts of land.

1.2 Need and Background

The WSCC estimates a demand for approximately 11,300 MW of new power plant generation to be constructed in its region of the western United States over the next 10 years to maintain reliable operation of the transmission system. The Toquop project would provide much needed support to the overall energy supply in this region and contribute approximately 10 percent of the projected demand for new generation within the WSCC. Based on data available from the WSCC, the 2002 Operating Reserve Margin (the difference between available capacity, excluding transfers, and peak demand) for the Las Vegas area and the Arizona-New Mexico-southern Nevada area is minus 2.9 percent. This indicates that the area relies on importing electricity to meet peak demands. This situation is the result of growth in the demand for electricity to serve a fast growing region. The proposed project would significantly strengthen the electric grid in the Las Vegas area, including the City of Mesquite, based on the flow of electric power on the existing transmission system.

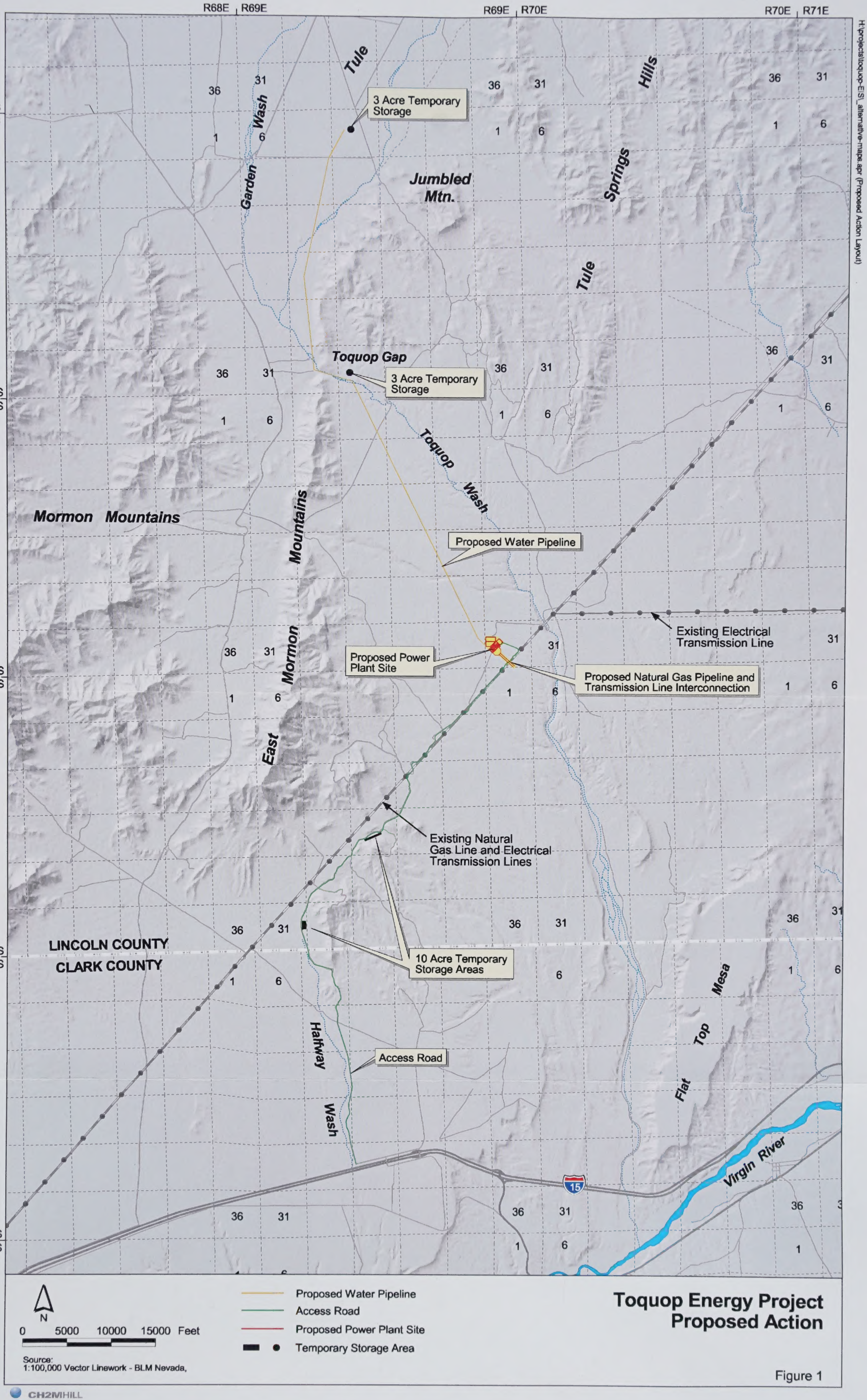
Needed and desired economic benefits would result from the construction and operation of the power plant. Lincoln County is approximately 98 percent public land with limited industrial and commercial development. Lincoln County ranks near the bottom among Nevada's counties in population, total personal and per capita income, and tax revenues.

Development of the proposed power plant and associated linear facilities would provide important increases to the Lincoln County tax base through sales, use, and property taxes on the power plant improvements. The construction and operation of the power plant would have positive effects on employment opportunities and result in increased revenue from project-related purchases of goods and services.

1.3 Rights-of-Way Locations and Descriptions

Construction and operation activities for the Proposed Action specifically requiring ROWs include the following:

- Power Plant Site
  - Construction and operation of a maximum 1,100-MW combined-cycle, natural gas-fired, water-cooled electric generating plant, with connections to a natural gas pipeline and electric transmission line.
- Natural Gas Pipeline and Electric Transmission Line Interconnection
  - Located within the original 100-acre power plant site, the interconnection ROW will consist of an approximate 200-foot-wide corridor to connect the power plant with the existing natural gas pipeline and electrical transmission line.
- Access Roads
  - Paving to a width of 24 feet and straightening sections of 14.4 miles of an existing dirt and gravel road (locally known as the Halfway Wash Road and utility corridor road) to produce an access road extending from I-15 to the plant site.


R68E
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T9S
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T11S
T12S
T12S
T13S
T13S
T14S
36
31
1
6
Tule
Garden
Wash
3 Acre Temporary Storage
Jumbled Mtn.
Springs
Hills
Tule
Toquop Gap
3 Acre Temporary Storage
Toquop
Wash
Mormon Mountains
East
Mormon
Mountains
Proposed Water Pipeline
Existing Electrical Transmission Line
Proposed Power Plant Site
Proposed Natural Gas Pipeline and Transmission Line Interconnection
Existing Natural Gas Line and Electrical Transmission Lines
10 Acre Temporary Storage Areas
LINCOLN COUNTY
CLARK COUNTY
Halfway
Wash
Access Road
Flat
Top
Mesa
Virgin
River
15
H:\projects\toquop-EIS_alternative-maps.apr (Proposed Action Layout)
N
0
5000
10000
15000
Feet
Proposed Water Pipeline
Access Road
Proposed Power Plant Site
Temporary Storage Area
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Source:
1:100,000 Vector Linework - BLM Nevada,

Toquop Energy Project
Proposed Action

Figure 1

- Wellfield
  - Installation of an estimated 15 wells in the Tule Desert Basin (Hydrographic Basin #221) over the life of the project sufficient to produce an annual average flow of 3,800 gallons per minute (gpm) (7,100 gpm peak daily) of water for the power plant. It is estimated that the power plant could use up to 7,000 acre-feet of water per year.
  - Construction and operation of a manifold collection system to interconnect the water output from the wellfield to a pressure-regulating water tank.
  - Construction and operation of a pressure-regulating water tank located near the wellfield before the water pipeline to the power plant.
- Water Pipeline
  - Construction and operation of a 12.5-mile-long, 24-inch-diameter buried water pipeline extending from the wellfield in the Tule Desert, through Toquop Gap, to the power plant near the Toquop Wash.
  - Construction and operation of buried electric distribution power lines from the power plant to the well pumps (within the water pipeline ROW).

The main components described for this POD include the power plant site, road access and transportation, the wellfield, and the water pipeline, as described below. All ROW components are located on public lands administered by the BLM. Legal descriptions of ROWs are provided in Appendix A.

1.3.1 Power Plant Site

The power plant site is in T11S, R69E, Section 36, in Lincoln County, Nevada, on public lands administered by the Ely Field Office of the BLM. The site is approximately 12 miles north-northwest of Mesquite, 70 miles northeast of Las Vegas, 6 miles north of the Lincoln County/Clark County line, and 10 miles west of the Nevada/Utah/Arizona border. Figure 2 shows the detailed location of the proposed power plant site.

The 80-acre power plant site contains uninhabited public land near the Toquop Wash on the northern boundary of the Mojave Desert. The site is relatively flat, with a 2 percent slope from northwest to southeast, and varies in elevation from 2465 to 2590 feet above mean sea level. The entire site is within the Virgin River Hydrographic Basin (#222). The South Fork Toquop Wash runs within 3/4 mile of the site to the north, and the main stem Toquop Wash runs north/south approximately 1/4 mile east of the site. The Toquop Wash system receives runoff from the Mormon and East Mormon mountains located west and northwest of the site and drains to the Virgin River. The Kern River Natural Gas Pipeline, Navajo-McCullough Electric Transmission Line, and Red Butte-Harry Allen Electric Transmission Line cross the southeast corner of the site.

1.3.2 Natural Gas and Electric Transmission Line Interconnection

The 20-acre corridor for the interconnection of the power plant to the existing natural gas pipeline and Nevada-McCullough Transmission Line is located within the original 100-acre power plant site.

1.3.3 Access Roads

The existing access road from I-15 that is currently used for maintenance of utilities would provide the main site access to the power plant site. Additionally, an approximate 12.5-mile-long existing dirt road between the power plant site and the wellfield would be used for maintenance activities on the wellfield. Access to the site during construction activities would be limited to defined access road areas that would be flagged definitively and monitored by the Compliance Inspection Contractor (CIC). (See Section 5.0.)

The power plant site would be accessible from I-15 via the East Mesa Interchange, which is 13 miles west of Mesquite. (See Figure 1. Approximately 14.4 miles of an existing dirt and gravel road (Halfway Wash/utility corridor road) would be paved to a width of 24 feet, and some sections would be straightened to produce an access road extending from I-15 to the plant site. The construction ROW for this 14.4-mile-long access road would be quite variable in width and would occupy 246 acres. This access road presently occupies 30 acres. The net new construction ROW disturbance from the widened access road would be 216 acres. Staging areas required for road construction would total 20 acres and would be reclaimed. The long-term ROW for the access road would occupy 138 acres. The net new permanent impact within the long-term ROW would be 65 acres. No new roads would be required for site access. Estimated effects from access road construction and operation in Clark County and Lincoln County are provided in Table 1. Specific construction and operational ROW calculations for the access road by segments are provided in Appendix C.

TABLE 1
Land in Clark County and Lincoln County Affected by the Access Road

	Clark County (acres)	Lincoln County (acres)	Total (acres)
Construction right-of-way for access road	89	157	246
Existing access road	10	20	30
Net new construction right-of-way disturbance	79[a]	137[b]	216
Staging areas	0	20[a]	20
Long-term right-of-way for access road	50	88	138
Net new permanent disturbance within long-term right-of-way[c]	23	42	65

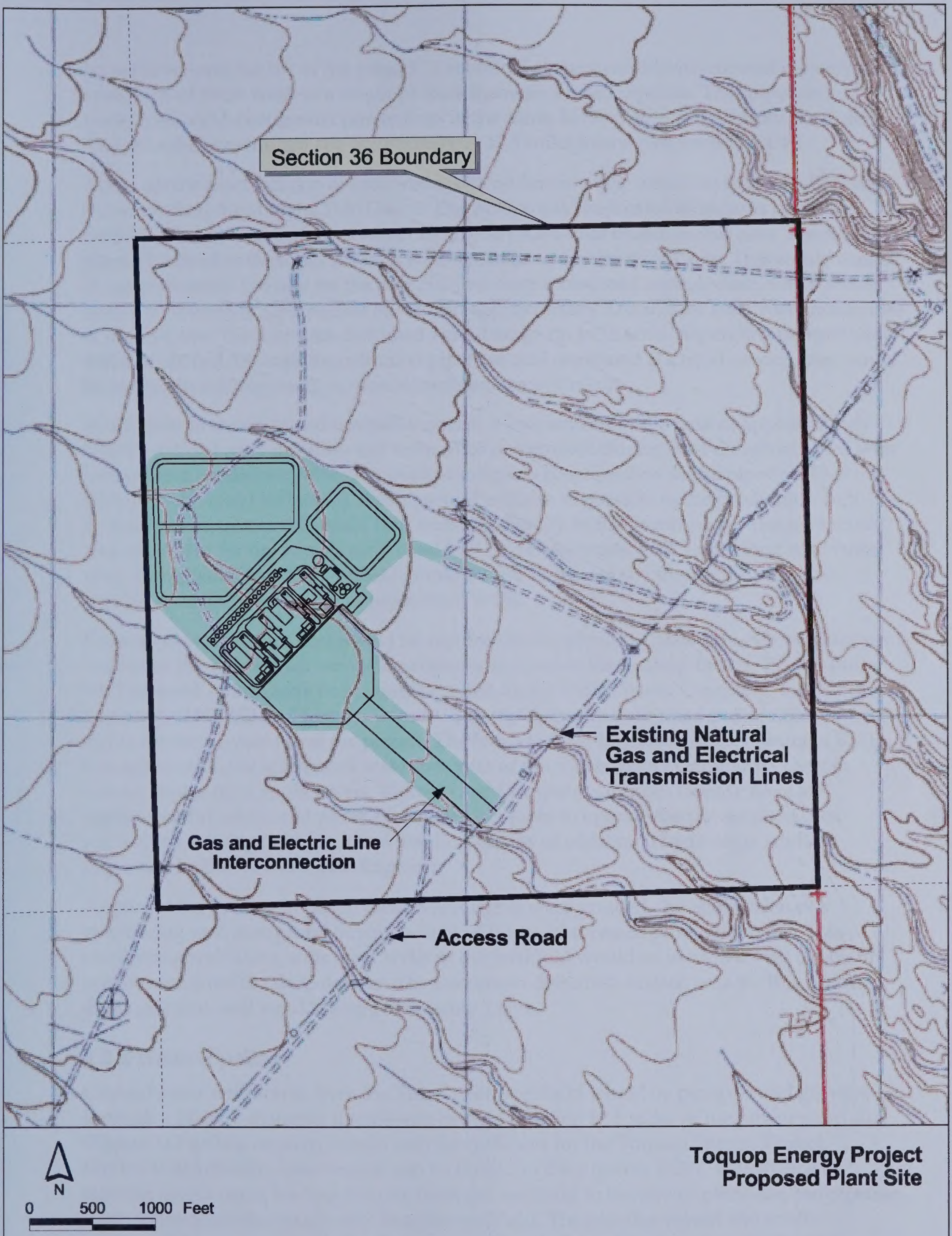
[a] All within the Mormon Mesa ACEC

[b] 123 acres within the Mormon Mesa ACEC

[c] Except for these 65 acres, all other lands disturbed as a result of project activities in the construction right-of-way, permanent right-of-way, and staging areas would be reclaimed.

1.3.4 Wellfield

The Proposed Action includes the development of a wellfield in the Tule Desert Hydrographic Basin (#221) to supply groundwater to the power plant. The wellfield would be located north of the power plant site (See Figure 1). Studies are currently being conducted to determine the exact number and location of wells. For purposes of analysis, it is assumed that up to 15 deep wells, each with a pump enclosed by a small building, would


Section 36 Boundary
Existing Natural Gas and Electrical Transmission Lines
Gas and Electric Line Interconnection
Access Road
750
N
0
500
1000 Feet

Toquop Energy Project
Proposed Plant Site

Source:
Maptech 1:24,000 Scanned Topo Maps

Figure 2

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be required over the life of the project. A manifold system would interconnect the output from each of these wells to a single 24-inch-diameter buried pipeline. That pipeline and buried electrical distribution power lines in the same ROW would extend from the Tule Desert to the power plant site approximately 12.5 miles away. (See Section 1.1.4.)

Although the exact location of each well is not yet known, they would be spatially dispersed in the southern third of the Tule Desert. The wells would be located as close as possible (within 300 feet) to one of the several existing dirt roads that crisscross this area. The maximum disturbed surface area for each well would be approximately 1 acre. This would consist of approximately 1/3 acre for the new 300-foot-long access road and pipeline, which would have a 60-foot-wide construction ROW, and approximately 2/3 acre for construction activities at the well site. The total area disturbed would range up to 15 acres, depending on how many wells are drilled. Because the collection pipelines and associated electrical service lines would be located in existing roads, no new disturbance would result.

In addition to the wells and manifold system, a raw water storage tank of approximately 500,000 gallons (configuration and color to be determined during final design to blend with background conditions) would be built to maintain constant flow in the pipeline. This storage tank would be located above ground as close as possible to the production well farthest downstream and would feed water by gravity to the power plant. The maximum disturbed area for the storage tank would be 1 acre. An existing 12.5-mile-long road from the power plant site to the wellfield would be used occasionally to provide access for maintenance and monitoring of production wells.

Permanent water rights that would be required to supply up to 7,000 acre-feet of water per year from the Tule Desert wellfield necessary to operate the Toquop Energy Project under the Proposed Action have been jointly applied for by Vidler Water Company, Inc. (a sister company of NLRC) and Lincoln County. Toquop Energy would lease and use these water rights for the 42-year life of the project. The Nevada State Engineer (Ruling Number 5181) has approved 2,100 acre-feet of water per year of the Vidler Water Company - Lincoln County water right applications. Vidler Water Company - Lincoln County have an application for additional water allocations adequate to operate the power plant. The application is being held for action pending results of additional hydrologic studies requested by the Nevada State Engineer.

As part of the process in which these water rights were granted, the installation of a monitoring well is required downgradient of the southernmost production well. This monitoring well along with other wells in the wellfield would be used to assess effects of withdrawal from the deep aquifer. The maximum disturbed surface area for this specific downgradient well would be approximately 1 acre.

1.3.5 Water Pipeline

Groundwater withdrawn from the Tule Desert wellfield would be pumped and gravity-fed through a 24-inch-diameter ductile iron or steel pipeline 12.5 miles to the power plant site. (Figure 1).Pipeline capacity would only be sufficient for the Toquop Energy Project. Electrical distribution lines would also be buried in the pipeline ROW. Due to lack of existing access roads leading directly from the wellfield to the power plant site, the pipeline route follows existing roads only near the wellfield. The pipeline would run south-southwest for approximately 5 miles, crossing Sam's Camp Wash west of the East Mormon

Mountains, and then proceed east approximately 3/4 mile through the Toquop Gap. It would then turn south-southeast for approximately 6 miles directly to the plant site. The line would cross the South Fork Toquop Wash 1-1/2 miles north of the proposed plant site. The wash is approximately 80 feet deep at the proposed pipeline crossing point.

The temporary ROW for pipeline construction would be 60 feet wide to allow for soil disturbance during pipeline trenching, laying, backfilling operations, and laying of the electrical lines to the wellfield. Staging areas during pipeline construction would consist of a 3-acre area at the northern end of the pipeline in Section 4; a 3-acre area midway along the pipeline just east of the Toquop Gap; and 3 acres at the power plant site. Because the acreage for the third area is included in the total for the power plant site, the water pipeline staging areas are considered to total 6 acres.

After construction, a long-term 30-foot-wide ROW would be sufficient for maintenance activities. The construction and long-term ROW for the 12.5-mile-long water pipeline would include approximately 90 acres and 45 acres, respectively. All disturbed lands within these ROWs and staging areas would be reclaimed, and no permanent disturbed areas would result from pipeline construction. Maintenance would include periodic inspection of the entire route and routine exercising of all valves in the system. It is anticipated that this activity could be supported using low-impact all-terrain vehicles. Should major maintenance or repair be required, most equipment could be supplied by helicopter or four-wheel drive vehicles to eliminate the need for a permanent access road. Vegetation would be reestablished in the disturbed surface areas over time according to measures described in the project Restoration Plan (Appendix B) and in Section 5.0. A fence would be built along a section of the pipeline to ensure that the vegetative restoration is not damaged by livestock. The fence would start at the Toquop Gap and run north parallel to the pipeline for approximately 3.5 miles where it would connect to an existing fence line. During operations, signs would be posted to discourage recreational use of this ROW and to warn of electrical hazards in the event of excavation.

2.0 Facilities Design

Final design of proposed project facilities has not been completed. However, typical design elements are discussed for the main project components, including the power plant, the access road, the wellfield, and the water pipeline. Uniform engineering design standards would be used during final design of project components. Additionally, engineering design standards required by the ROW grant or other permitting authorities would be implemented for project design and construction.

2.1 Power Plant Design

The power plant, switchyard, equalization and evaporation ponds, associated facilities, and a lay-down area would cover approximately 80 acres. This acreage would be surrounded by an 8-foot-high chain link fence that meets desert tortoise exclusion requirements. It would enclose the following structures:

- **Combustion Turbine Generators.** These natural gas-fired combustion turbines would each be directly connected to an 18-kilovolt (kV), three-phase generator. Combustion gases from the turbines would exhaust into the heat recovery steam generators.

- **Heat Recovery Steam Generators.** These steam generators would use the heat of the gas turbine exhaust to produce low-, intermediate-, and high-pressure steam. The steam from each pair of heat recovery steam generators would be used to drive a steam turbine generator.

- **Heat Recovery Steam Generator Stacks.** These cylindrical stacks would be 180 feet high, 18 feet in diameter, and carry the 170- to 195-degree Fahrenheit heat recovery steam generator exhaust above surrounding buildings. An air quality sampling platform would be constructed on each stack for stack testing and combustion emissions equipment.

- **Steam Turbine Generators.** These steam turbines would use steam produced by the heat recovery steam generators to drive 18-kV, three-phase generators. The steam would exhaust into a condenser, return to its liquid state, and be recycled back into the heat recovery steam generators.

- **Condenser.** A large shell-and-tube heat exchanger would attach to the steam turbine exhaust side, which would condense exhaust steam from the steam turbine. The condensate would be recovered and chemically conditioned to minimize corrosion and scale formation for reuse in the system. Chemicals used (such as oxygen scavenger, amine solutions, and phosphate solutions) would be stored within spill containment areas in self-contained storage systems called totes (typical volume of 400 gallons) in the water treatment building in compliance with federal, state, and local regulations.

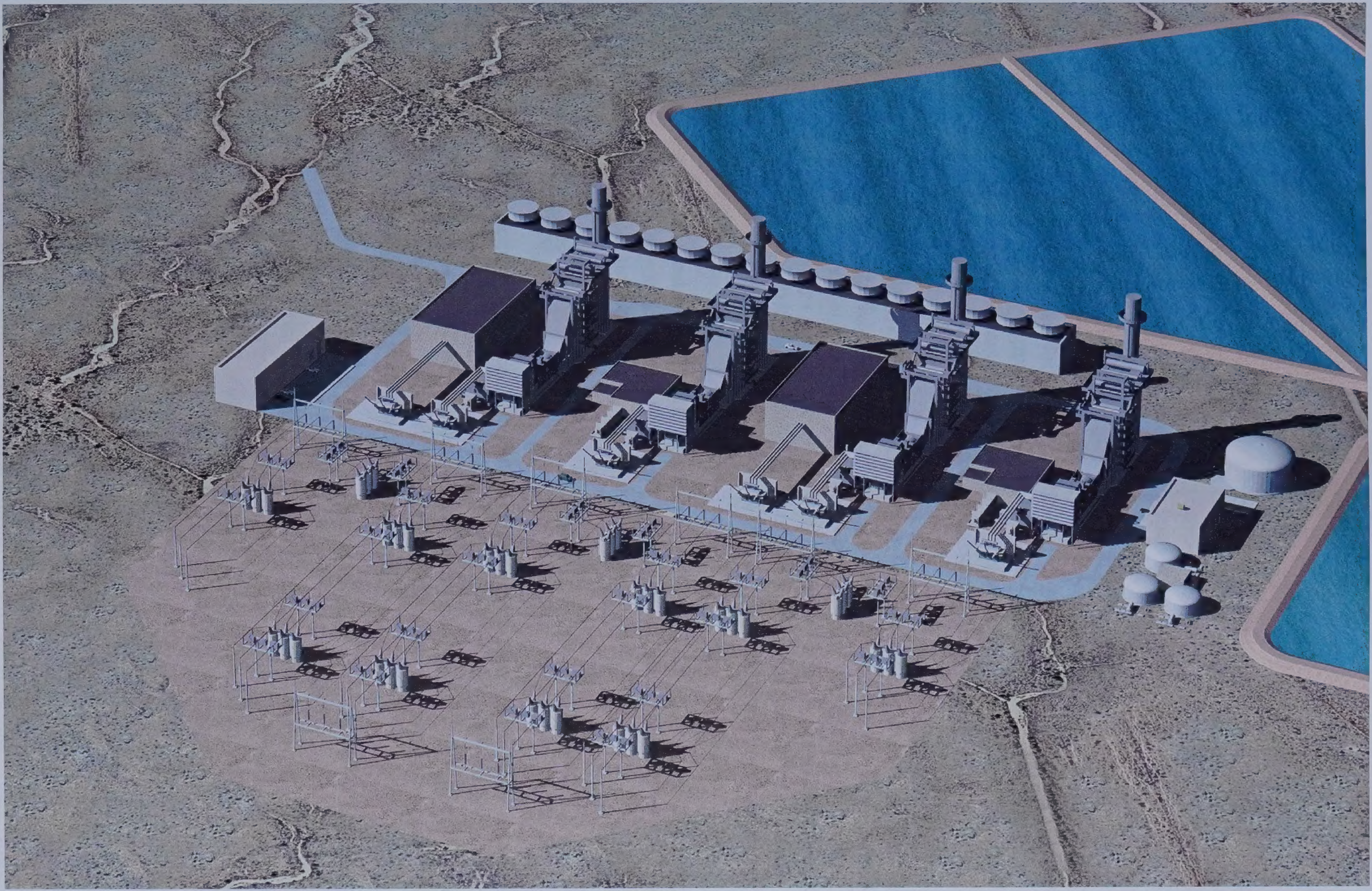
- **Cooling Towers.** Mechanical-draft wet cooling towers would be used to reject heat from the steam condenser to the atmosphere by evaporating a portion of the circulating water. The circulating water would be treated with small amounts of chemicals such as scale inhibitors, sulfuric acid, and sodium hypochlorite to minimize scale formation, maintain pH, and inhibit biological growth, respectively. Sulfuric acid and sodium hypochlorite would be stored in aboveground vertical tanks within secondary containment. The other lesser inhibitors and treatment chemicals would be stored in totes located within secondary containment. The storage for these totes would be inside the storage building located near the cooling towers. Water would be recycled through the towers at least ten times prior to discharge.

- **Equalization Pond.** A 5-acre uncovered equalization pond would be constructed onsite to keep the water chemistry balanced for use in the cooling system. This pond would be sealed with a 60-mil-thick double liner.
- **Evaporation Pond.** A 20-acre uncovered evaporation pond would be constructed onsite to handle the disposal of all wastewater. The pond would be sealed with a double liner. Each liner would be 60 mils thick. No wastewater would be discharged from the facility to any surface water or offsite treatment facilities, which would be consistent with state requirements for a ground water discharge permit. Dry solids from water treatment would be disposed of offsite at a licensed landfill. Appropriate mitigation measures to minimize potential impacts to avian species will be implemented as necessary (FEIS 2003). The Nevada Division of Wildlife (NDOW) will be contacted to determine permitting requirements prior to project development.
- **Electrical Switchyard.** Electricity generated by each of the four combustion turbine generators and the steam turbine generators would be increased from 18 kV to 500 kV and transferred to the Navajo-McCullough Electric Transmission Line located on the plant site. Electricity produced at the power plant would be sold to the wholesale market through the Navajo-McCullough Electric Transmission Line (Western Transmission System). The Nevada-McCullough Transmission Line has adequate capacity to transmit the electricity that would be generated by the Proposed Action. A portion of the electricity could be stepped up to 345 kV and transferred to the existing Red Butte-Harry Allen 345-kV line in the utility corridor. This line, owned by Nevada Power, has sufficient capacity to transmit the electricity that would be generated by the Proposed Action.

The conceptual rendering of the Toquop Energy Project power plant is provided in Figure 3.

2.2 Natural Gas Pipeline and Electric Transmission Line Interconnection

A 200-foot wide corridor would contain the interconnections from the power plant to the existing natural gas pipeline and the Nevada-McCullough Transmission Line. This 20-acre corridor is located within the original 100-acre power plant site.



Toquop Energy Project
Water-Cooled Power Plant
Conceptual Rendering

Figure 3

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2.3 Access Roads

The primary access road proposed for project construction and operations is currently the primary access for maintaining a microwave station, communications equipment optical fiber lines, natural gas pipelines, and electric transmission lines located on the southern end of the East Mormon Mountains. Use of this road for project access would require that the road be regraded and a suitable base material be installed and then paved for all-weather use. The existing road would require straightening in some locations where it has very small radius turns. Minor improvements would be required on the frontage road at the I-15 Interchange to handle large construction equipment and the largest components of the power plant itself. The alignment of the existing road, areas of realignment, limits of impacted areas, calculations of construction and operational ROWs, and potential areas for construction staging, asphalt and concrete production, and borrow areas are provided in Appendix C.

Some ephemeral washes exist where culverts or other materials would be installed to prevent road damage during periods of excessive runoff. The locations of the washes to be affected by all ROWs (access road, power plant, and water pipeline) are provided in Appendix D. Crossings of ephemeral washes that are within the jurisdiction of the U.S. Army Corps of Engineers (USACE) would be addressed through Section 404 Clean Water Act (CWA) permitting requirements, including construction Best Management Practices (BMP).

The existing dirt road that would lead from the power plant site to the wellfield site would also be periodically used for maintenance of the wellfield. It is not expected that this road would require improvements.

2.4 Wellfield

Up to 15 production wells would be installed in the proposed wellfield, as described in Section 1.1.3. Although final locations for all wells have not been determined, production well and ancillary facility installation design would use existing dirt roads within the area as feasible. Restoration of any construction effects would be conducted as designated in Section 5.0 and the Restoration Plan. (See Appendix B.)

Rights-of-way for the well sites and access roads to these sites, manifold collection system, and pressure-regulating water tank would be issued on a case-by-case basis as an amendment to the original ROW grant. Although the environmental studies have been completed in the Final Environmental Impact Statement for this project, a cultural report would need to be completed after the exact locations are identified. All terms and conditions of the original ROW grant would still be in force for any amendments.

2.5 Water Pipeline

Trenching or open-cut construction methods would likely be used for pipeline placement. The pipeline would be buried deep, well below potential streambed scour, erosion, and exposure, and away from potential lateral bank migration. The potential for both scour and lateral bank migration would be further studied during final design to determine burial depth necessary to protect the pipeline from exposure and failure during floods. Open-cut construction techniques would probably preclude reestablishing the vertical wall in some sections of the canyon.

Steel pipe, if used, would be lined with cement mortar, have a dielectric coating, and have a cement-mortar coating (rock shield) on the exterior of the pipe. The type of dielectric coating would depend on the corrosivity of the soil and would be determined during final design. Ductile iron pipe, if used, would also be cement-mortar lined, with an asphaltic 1-mil-thick exterior coating, and a polyethylene encasement in areas of corrosive soil, also to be determined during final design.

3.0 Project Construction

3.1 Overview

Construction activities would incur the following sequence: surveying for project features, including centerlines of ROWs, staking project features, site clearing and preparation including plant removal, access road construction and improvement, foundation construction, installation of structures and equipment, site cleanup, and project start up.

3.2 Construction Schedule and Workforce

The construction phase for the access road, power plant, and water pipeline would start between mid-2003 and the end of 2004. The exact start of construction will be refined as part of the overall development process. Construction would last for approximately 26 months. The average construction crew is estimated to be approximately 500 people. Normal construction hours would be from 6 a.m. to 3 p.m. on weekdays; however, some activities would require extended operation hours for scheduling constraints, to maintain structural integrity of concrete pours, or for other time-sensitive matters.

3.3 Construction Activities

Construction activities would include the following four phases:

- Surveying, site clearing, and preparation
- Foundation construction
- Building and equipment installation
- Site cleanup and project start-up

3.3.1 Surveying, Site Clearing, and Preparation

Prior to site clearing and preparation, surveying would be conducted to determine project component boundary locations, centerline locations, ROW boundaries for construction activities, laydown areas, other work areas including construction staging areas, borrow areas, and concrete and asphalt plant locations.

A field flagging plan would be developed that incorporates easily identifiable color schemes for specific areas to be flagged. This flagging plan for project components and instructions on any restrictions for these areas would also be developed in conjunction with Compliance Monitoring Guidelines. Flagging would be maintained and remain in place until final site cleanup and reclamation measures are implemented.

The proposed areas for construction have been surveyed for biological and cultural resources, and mitigation measures for potential project development impacts have been developed, as described in detail in the EIS. Additional information relative to environmental resource protection is provided in Section 5.0 and Appendices to this plan.

Site clearing and preparation would require heavy, diesel-powered earthmoving equipment including bulldozers, scrapers, dump trucks, and front-end loaders. Site clearing and preparation would occur at all locations where equipment would be constructed or installed and along the access road to be widened. Some blasting is anticipated, depending onsite-specific conditions at the various construction sites and the results of geotechnical field investigations during final design. Specific BLM guidance for protection of desert tortoise would be followed relative to clearing areas prior to blasting activities. Blasting stipulations are described in Section 5.1.4.1 and would be reiterated in the construction compliance protocol.

The amount of cut and fill would be estimated during detailed final design, pending approval of the ROWs and acquisition of required permits. Table 2, on the following page, presents an estimate of the number, type, and length of use of construction equipment.

The size of the area used for borrow material would depend on the suitability of available materials and be determined during final design. However, all borrow material would come from areas that would be disturbed during construction of the power plant. If additional borrow material is needed, it would come from an existing offsite commercial facility. No new borrow areas would be constructed for this project.

During construction, up to 125,000 gallons (0.4 acre-foot) of water would be used daily. This water would be acquired from the permanent groundwater system for the project. Water uses during the construction phase would include dust control, concrete curing, and hydrostatic testing of completed pipelines and heat recovery steam generators. Only bottled water would be used for human consumption.

During construction, diesel-powered generators would produce the required electricity. Generators would be connected to an onsite transformer for distribution to electrically powered construction tools and equipment. Communications during construction would be accomplished via a microwave tower that would be constructed on the power plant site.

An estimated 449 acres would be disturbed and/or included in construction ROWs under the Proposed Action. This total would consist of 80 acres that would be fenced and would enclose the power plant, switchyard, equalization and evaporation ponds, associated facilities, and a lay-down area; 20 acres for the interconnection of the natural gas pipeline and the electric transmission line; 216 acres of new disturbance for the access road; up to 15 acres for the wellfield; 1 acre for the monitoring well; 1 acre for the storage tank; 90 acres for the water pipeline; and 26 acres for staging areas (20 acres for the access road and 6 acres for the water pipeline). Disturbed lands within ROWs would be restored as a component of the Proposed Action according to measures described in Section 5.0 and in Appendix B (Restoration Plan).

A summary of the estimated extent of temporary and permanent disturbances from construction and operation of project ROW components is provided in Table 3. Long-term disturbances would total 182 acres and consist of 80 acres for the fenced power plant site; 20 acres for the gas pipeline and electric transmission line interconnection; 17 acres for the wellfield, monitoring well, and storage tank; and 65 acres of net new disturbance for the access road. Other lands disturbed during construction along the access road, in the pipeline ROW, and at staging areas (267 acres) would be restored.

TABLE 2
Time and Equipment Construction Requirements for the Proposed Action

Equipment **Component: Power Plant (730 days)**	Capacity (horsepower)	Fuel Type	Number of Units	Use Days (per unit)	Total Use (in days)
Excavator/Trackhoe	250	Diesel	4	50	200
D10 bulldozer	400	Diesel	1	175	175
Front-end loader	200	Diesel	2	730	1,460
Backhoe	200	Diesel	3	120	360
Crane	225	Diesel	6	135	810
Water truck	300	Diesel	2	250	500
Concrete truck (20,000 cubic yards; 2,000 trips)	325	Diesel	12	80	960
Dump truck	250	Diesel	3	80	240
Material delivery truck (3,000 trips)	250	Diesel	—	—	1,500
Concrete pump truck	400	Diesel	1	120	120
Loader	100	Diesel	1	290	290
Fork lift truck	100	Diesel	6	235	1,410
Electric generator	5	Gasoline	10	200	2,000
Pick-up truck	150	Gasoline	3	730	2,190
Welder	250 amps	Electric	15	60	900
Component: Access Road Construction (180 days)					
D8 bulldozer	400	Diesel	2	120	240
D6 bulldozer	300	Diesel	2	120	240
Scraper	300	Diesel	4	120	480
Water truck	250	Diesel	2	150	300
Pick-up truck	200	Diesel	2	150	300
Asphalt trucks	250	Diesel	6	60	360
Component: Water Pipeline Construction (90 days)					
Trackhoe	300	Diesel	2	80	160
D6 bulldozer	300	Diesel	2	80	160
Pick-up truck	150	Diesel	2	90	180
Pipe delivery truck	250	Diesel	1	80	80

TABLE 3
Temporary and Permanent Effects from Construction and Operation of the Toquop Energy Project ROWs

Project ROW Component	Temporary Disturbance (Construction)	Restored Acreage	Total (Net) Permanent Disturbance (Operations)
Power Plant	80	0	80 (fenced PP site)
Natural Gas and Electric Transmission Line Interconnection	20	0	20
Access Road ROW	216	151	65
Staging Areas	20	20	0
Wellfield	17	0	17
Water Pipeline	90	90	0
Staging Areas	6	6	0
Project Total	449	267	182

Note: All areas are in acres

3.3.2 Foundation Construction

Foundation construction would involve concrete handling equipment such as concrete trucks, mixers, vibrators, and pumps. Some earthmoving equipment also would be required to backfill the foundations. Any blasting activities that may be required would occur for as short a duration as possible and would be limited to daytime. Prior to any blasting activities, specific BLM guidance for desert tortoise protection would be followed, as described in Section 5.1.4.1.

3.3.3 Building and Equipment Installation

Building and equipment installation would involve mobile cranes, equipment delivery, impact wrenches, grinders, and air compressors. Installation activities would be restricted to the power plant site, except for the water pipeline and the water storage tank to be constructed in the Tule Desert, and the widening of the access road.

3.3.4 Site Cleanup and Facility Start-Up

Site cleanup and power plant start-up would generally require minimum amounts of heavy machinery. It would primarily include flushing pipes, blowing out steam lines, and testing equipment and controls. The facility would begin commercial operation at an undetermined time.

3.4 Waste Management

Contractors would be required to comply with Nevada State Regulations established under the authority of the Federal Resources Conservation and Recovery Act of 1976.

As necessary, process wastewater solid precipitant would be transported for disposal at a licensed landfill. Solid precipitant stored onsite would be covered until transported offsite for disposal.

Aboveground chemical tanks would be located within a containment structure that is paved and bermed, and that is sufficient to contain a release from the largest tank within the area, plus sufficient freeboard to prevent overflow. Tanks would be registered, constructed, and managed using accepted engineering best practices, which may include high-level alarms or indicators to prevent overflow and locking valves. Tanks would be subject to a regular inspection regime.

The potential for adverse impacts from oil and fuel spills would be reduced through careful handling and designation of specific equipment repair and fuel storage areas.

Outdoor oil storage areas would be bermed with a capacity sufficient to contain the oil inventory contained in the single largest tank/equipment plus sufficient freeboard to prevent overflow. These areas would be equipped with a normally locked valve. Regular inspections would determine if there had been a leak requiring special attention. Otherwise, the valve would be opened to drain any rainwater to a plant oil/water separator. Any oil collected in the separator would be pumped out and removed by a licensed oil disposal contractor.

Outdoor chemical and hazardous waste storage areas would be within diked containment areas. Chemicals and wastes would be stored in accordance with the fire safety, hazardous materials management, and hazardous waste management standards of practice, which include segregation of incompatibles, protection of water-reactive materials from precipitation or moisture, adequate aisle space, etc.

Waste materials known or found to be hazardous would be disposed of in approved treatment or disposal facilities in accordance with federal, state, and local regulations, standards, codes, and laws.

Solid waste would be stored in closed onsite roll-off bins. Recyclable materials would be separated from the solid waste stream. Solid waste would be collected periodically and transported to a local licensed landfill.

Generation of wastes during construction would be minimized through detailed estimating of materials needed and through efficient construction practices. Any wastes generated during construction would be recycled as much as feasible. Concrete waste would be used as fill onsite, or, if not suitable for reuse, would be removed to a local licensed landfill. Any non-recyclable wastes would be collected and transported to a local licensed landfill.

Fuels, lubricant chemicals, and welding gases used during construction would be in controlled storage until used. Any empty containers or waste material would be segregated in storage and properly recycled or disposed of by licensed handlers.

Concrete trucks would not be washed at construction sites. All spilled concrete would be removed from construction areas and disposed of properly.

Portable toilets would be provided for onsite sewage handling during construction and would be pumped out and cleaned regularly. Sewage would be treated onsite during operation of the power plant.

A Construction Spill Prevention and Containment Plan for construction activities is provided in Appendix E.

3.5 Fire Protection

All federal, state, and county laws, ordinances, rules, and regulations, which pertain to prevention, pre-suppression, and suppression of fires, would be strictly adhered to. All personnel would be advised of their responsibilities under the applicable fire laws and regulations. The construction contractor would notify the BLM when a project-related fire occurs within or adjacent to the construction area.

The contractor would be responsible for any fire started, in or out of the project area, by its employees or operations during construction, and fire suppression and rehabilitation. The contractor would take aggressive action to prevent and suppress fires on and adjacent to the project area, and would use its workers and equipment on the project for fighting fires within the project area.

The following safety measures are included:

- All vehicles must stay on designated roads or park in areas free of vegetation.
- The contractor would provide and store in a place easily accessed at each construction site, the following items: five shovels, two backpack pumps with water, and one 5-pound ABC dry powder carbon monoxide fire extinguisher during all construction activities.
- Contractor would have notification numbers (see Table 4) readily available for all employees in case of fire.

TABLE 4
Fire Notification Numbers

Contact	Address and Phone Number *
BLM Authorized Officer	(address and telephone)
Fire Dispatch	(address and telephone)
Authorized Office	(address and telephone)
Construction Manager	(address and telephone)

* Information to be provided prior to construction initiation

3.6 Contingency Planning Contacts and Safety Requirements

Contingency planning contacts would include the Toquop Energy Project construction manager, the BLM Authorized Officer, and the CIC. Table 5 presents the contact information.

TABLE 5
Contingency Planning Numbers

Contact	Address and Phone Number*
Construction Manager	(address and telephone)
BLM Authorized Officer	(address and telephone)
CIC	(address and telephone)

* Information to be provided prior to construction initiation

All applicable federal, state, or local safety regulations (OSHA and NDOT) applicable to the project would be observed to ensure contractor and public safety. Employees and contractors would report all incidences including accident or injury to a designated project representative. Remedial action would be implemented as necessary based on the nature of the reported incident.

4.0 Operation, Maintenance, and Abandonment

ROWs for the Proposed Toquop Energy Project would be maintained during project operations in accordance with the terms and conditions of the ROW grant and any other applicable permits and regulations. Maintenance activities would include periodic inspections of ROWs and appropriate corrective actions as needed to ensure that ROW conditions are stable and meet regulatory requirements.

Prior to termination of any ROWs in the project area, the BLM and any other appropriate regulatory agencies would be contacted relative to development of an abandonment plan. The BLM Authorized Office must approve the abandonment plan prior to initiation of termination activities. Typical elements of an abandonment plan would include removal of all surface facilities and restoration of disturbed sites in accordance with the Restoration Plan for the project (Appendix B). Waste materials would be disposed in accordance with regulatory requirements. Concrete building foundations would be covered in place according to State regulations.

5.0 Environmental Resource Protection and Construction Compliance Monitoring

This section describes environmental resources in the project area that would be addressed during project construction and operation activities. Construction monitoring measures to insure compliance with the requirements of the ROWs grant, POD, and the Restoration Plan are also described. (See Section 5.2.). A list of federal, state, and other permits and approvals that my be needed for project construction and operation is provided in Appendix F.

5.1 Environmental Resource Protection

The environmental protection and mitigation measures listed below would be implemented during construction of the project.

5.1.1 Landscape Preservation and Impact Avoidance

1. To the maximum extent practicable, all trees, native shrubs, and other vegetation would be preserved and protected during construction operations and equipment except where clearing operations are required for permanent structures, approved construction roads, and excavation operations.

2. To the maximum extent practicable, all maintenance yards, field offices, and staging areas would be arranged to preserve trees, shrubs, and other native vegetation.

3. Clearing would be restricted to that area needed for construction.

4. All areas around structures would be backfilled, compacted, and returned as close as possible to the original condition and grade.

5. In order to reduce environmental damage, washes, steep slopes, or sensitive environmental areas would not be used for equipment or materials storage or stockpiling; construction staging or maintenance; borrow areas; field offices; hazardous material or fuel storage, handling, or transfer; or temporary access roads.

6. Excavated or graded materials would not be stockpiled or deposited on or within 100 feet of any steep slopes (defined by industry standards) or washes (including seasonally active ephemeral drainages).

7. The width of all new permanent access roads would be kept to the absolute minimum needed for operation, avoiding sensitive areas and trees where possible, and limiting disturbance to vegetation.

8. Landscaping standards, including clearing of native vegetation, would be followed as prescribed by local land use and management agencies when work is within their jurisdictions.

5.1.2 Erosion and Sediment Control

1. Planting native grasses, forbs, trees, or shrubs beneficial to wildlife, or placing riprap and other materials as appropriate, would be used to prevent and minimize the potential for erosion and siltation during construction of project features and during the period needed to reestablish permanent vegetative cover on disturbed sites. Sediment fences would be used where appropriate to limit wind and water erosion, and water trucks would be used in disturbed areas during construction to limit wind erosion.
2. Final erosion control and site restoration measures would be initiated as soon as a particular area is no longer needed for construction, stockpiling, or access. Clearing schedules would be arranged to minimize exposure of soils.
3. Cuts and fills for access roads and utility corridors would be sloped to prevent landslides and to facilitate revegetation.
4. Signs would be placed along the access road to discourage OHV use of adjacent areas.
5. Borrow areas would be contoured and shaped to carry the natural contour of adjacent undisturbed terrain into the borrow area.
6. Soil or rock stockpiles, excavated materials, or excess soil materials would not be placed near sensitive habitats, including washes, where they may erode into these habitats or be washed away by high water or storm runoff. Plastic would be placed over stockpiles to prevent wind erosion if the stockpiles are intended to be long-term. Waste piles would be revegetated using suitable native species after they are shaped to provide a natural appearance.
7. Intrusion on areas not identified for project construction activities would be avoided to reduce resource impacts, potential wind erosion and fugitive dust generated during construction.

5.1.3 Pipeline and Utility Corridor Construction

1. Construction ROWs would be limited to the minimum practicable width.
2. The upper 12 to 18 inches of soil would be removed from trench areas and stockpiled for later use.
3. Surface elevations would be returned to pre-project conditions, taking into account expected settling.
4. Where the pipeline crosses fences, a wire gate would be installed to standard BLM specifications. The gates would be built prior to the corridor construction, and would be kept closed except during active construction at the fence site.
5. If construction activities cause damage to existing range improvements (such as pipelines, fences, troughs, etc.), restoration would utilize material that meets or exceeds the quality of the existing improvement. If damage occurs the BLM and livestock operator would be notified immediately. If damage occurs during active livestock grazing, repairs would be made within 24 hours.
6. Big Galleta grass would be included within the seed mix used to revegetate the disturbed corridor.

7. A fence would be constructed between the Toquop Gap and the northern boundary of the Gourd Spring Allotment to protect the pipeline rehabilitation from livestock damage.

5.1.4 Biological Resources

1. Specific measures that would be implemented to protect desert tortoises and their habitat are described in Appendix G. Additionally, BLM guidelines for desert tortoise protection during possible blasting activities associated with construction would also be followed. Prior to blasting, a 200-foot radius around the blasting site would be surveyed for desert tortoise using 100 percent coverage techniques. All tortoises found would be moved 500 feet from the blasting site. Tortoises in burrows within 75 feet of the blasting site would be placed into an artificial or unoccupied burrow 500 feet from the blasting site. Tortoises in burrows within 75 to 200 feet of the blasting site would be left in their burrows. These guidelines are shown in Figure 4. Burrow locations would be flagged, stuffed with newspapers, and recorded using the Global Positioning System. Flagging and newspaper stuffing would be removed immediately following blasting.

2. Bird nests encountered during land disturbing construction activities would be avoided by providing the minimum buffer necessary to avoid disturbance until the young birds have fledged. To the extent practicable, land disturbing construction activities would be scheduled outside of the breeding season (March 15 through July 30). If construction is required during the breeding season, the area impacted would be surveyed for nests prior to construction.

3. Collapsing unoccupied but suitable burrows or other potential nesting cavities within the construction zone prior to the nesting season (typically March through August) can largely prevent direct impacts that may otherwise occur on burrowing owls. This would be accomplished, where appropriate, as part of the surveys for the desert tortoise. If owl-occupied burrows are located during their nesting or breeding season (March through August), burrows would be avoided until the young and adult owls leave the burrows.

4. Gila monsters in immediate danger from construction activities would be captured and confined in a cool, shaded environment by an experienced biologist in accordance with NDOW regulations. Injured Gila monsters would be transferred to a veterinarian. Dead Gila monsters would be preserved for NDOW. All encounters with gila monsters would be reported to NDOW.

5. Impacts to chuckwalla would be minimized by restricting activity in upland areas occupied by this species. Chuckwallas typically hide in rock crevices and other similar shelters when approached or threatened, making it difficult to capture and relocate them. However, trained personnel would remove them prior to construction if necessary.

6. If significant bat roosts are located within or adjacent to a construction zone, the roost would be avoided until the animals naturally vacate the site. Certain types of bat refuges, such as winter roosts used by non-hibernating California leaf-nosed bats, would be completely avoided if practicable. Certain naturally occurring caves, and even some abandoned mines, can provide the necessary temperature regimes critical to maintaining some local bat populations.

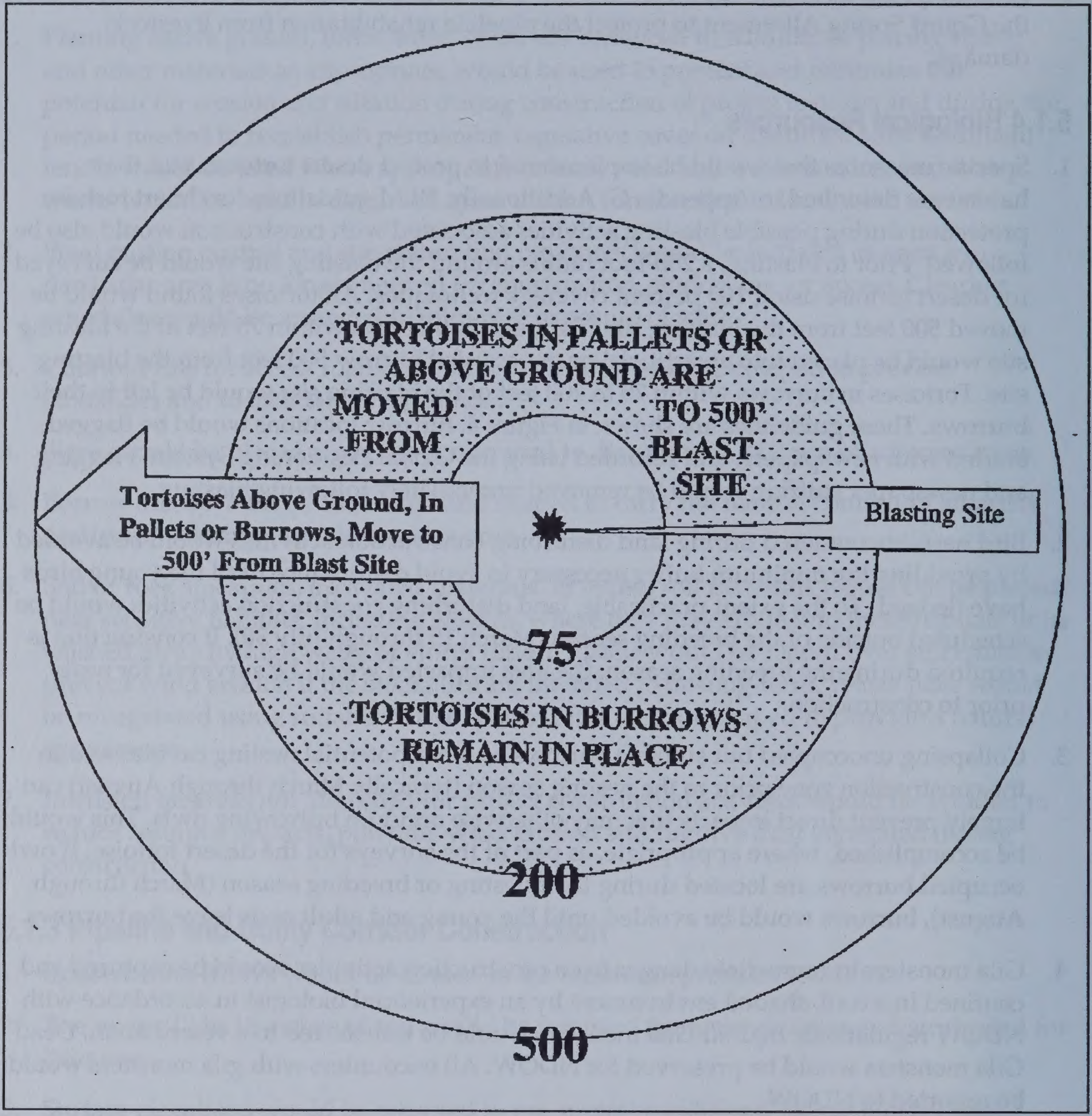
TORTOISES IN PALLETS OR ABOVE GROUND ARE
MOVED FROM
TO 500' BLAST SITE
Tortoises Above Ground, In Pallets or Burrows, Move to 500' From Blast Site
Blasting Site
75
TORTOISES IN BURROWS REMAIN IN PLACE
200
500

FIGURE 4
Blasting Guidelines

1. Signs warning of bighorn sheep crossing would be placed along the access road in order to reduce potential mortalities resulting from collisions with vehicles.

2. Agency review and assessment of project-associated impacts on vegetation may precipitate a mitigation requirement to salvage various plants located inside the construction zone. Protected or otherwise sensitive plants (such as Joshua trees and numerous species of cactus and yuccas) would be identified and removed from the construction corridor prior to the onset of construction. Salvaged plants would then be maintained for replanting along construction zone margins, other project-affected areas (for example, former equipment staging grounds), or alternate lands. Plant salvage activities would be most successful if scheduled outside the spring flowering season.

3. Vegetation salvage and replanting would be implemented and completed as required by the BLM in accordance with their established guidelines. Cacti and yucca plants that exist within proposed development areas would be relocated prior to site clearing. Roadway signage that discourages off-road travel would be used to help protect vegetation along road margins.

4. Noxious weed control (see Appendix H).

5.1.5 Cultural Resources

Ten archaeological sites (eight are prehistoric, two are historic) and two isolated artifacts could be affected. All of these cultural resources are ineligible for the National Register of Historic Places. Indirect impacts could potentially result from greater human activity in the area and possibly increased use by off-highway vehicles.

Appendix I of this document contains the Cultural Resources Programmatic Agreement between BLM and the Nevada State Historical Preservation Office for the Toquop Energy Project. This Programmatic Agreement contains stipulations to ensure that those historic and prehistoric properties eligible for nomination to the National Register of Historic Places would be treated to avoid or mitigate project-related effects to the extent practicable and to satisfy BLM Section 106 responsibilities. The Programmatic Agreement requires cultural resources inventory of yet-to-be determined locations for facilities such as wells, the manifold collection system and water tank, if these facilities are located in uninventoried areas.

5.1.6 Site Restoration and Revegetation

The temporary effects of project construction would be minimized and mitigated through site restoration and revegetation of the project area. The Restoration Plan (Appendix B) for the project complies with BLM's objectives for site reclamation.

5.1.7 Visual Resources

1. All structures, stacks, buildings, and tanks would be constructed of materials that would restrict glare, and would be finished with flat tones intended to blend with the surrounding environment. The project applicant would consult with Lincoln County and BLM regarding the final selection of colors for the features of the property.

2. All fencing would be constructed of nonreflective materials, and would be treated or painted to blend with the surrounding environment.

3. Signs at the plant site would be constructed of materials that are nonglare, and would be painted using unobtrusive colors.
4. Lighting would be limited to areas required for safety and security, and would be shielded and directed downward to the extent possible.
5. Lighting would be directed and shielded to reduce light scatter and glare. Highly directional, high-pressure sodium vapor fixtures (or other fixtures that meet the criteria specified) would be used where practicable.
6. Switches would be used as appropriate to allow use of lighting only when needed.
7. The transmission structures would be finished with flat, neutral gray tones that would relate to the colors of the structures in the existing transmission corridors and that would blend with the surrounding environment.
8. Nonspecular conductors and nonreflective and nonrefractive insulators would be used to reduce conductor and insulator visibility.

5.1.8 Water Pollution Prevention and Monitoring

1. A groundwater monitoring plan would be developed by Toquop Energy and approved by BLM. Results of monitoring would be provided to the U.S. Fish and Wildlife Service and the Nevada State Engineer annually.
2. Pumped groundwater would be monitored periodically to ensure that its quality is suitable for power plant operation.
3. All federal and state laws related to control and abatement of water pollution would be complied with. All waste material and sewage from construction activities or project-related features would be disposed of according to federal and state pollution control regulations.
4. Activity with a high potential for causing sediment movement into washes would not be conducted during potentially high runoff periods, typically July and August.
5. All disturbed ephemeral washes considered to be waters of the United States would be restored according to the conditions of a Section 404 CWA individual or Nationwide Permit. Aesthetic value of the restoration would be incorporated as part of the restoration activities. Where appropriate and as required by conditions of the Section 404 Permit, native species capable of bank stabilization would be used to revegetate disturbed banks. Ephemeral washes that would be affected by the proposed project are identified in Appendix D.
6. Diversion structures would be used to re-direct flows from the ephemeral wash potentially impacted by the power plant site and would be designed to minimize potential destabilization and erosion of adjacent and downgradient ephemeral washes.
7. Storm water management plans would be implemented for project construction and facility operation to minimize and control erosion from storm water runoff. Storm water during project construction would be managed in compliance with applicable state and federal regulations, including compliance with requirements of the National Pollutant Discharge Elimination System (NPDES) storm water general permits, which would be

obtained for the project. Storm water management elements would include the following:

- Application of best management practices for erosion, sedimentation, and stabilization control during construction activities, and management of oils and other substances during operation to minimize contact with storm water.
- Structural controls during operation that may include stabilized storm water conveyance systems (swales), oil-water separators for runoff that comes in contact with affected plant site surfaces, and sedimentation detention basins.
- Monitoring and maintenance to ensure long-term effectiveness of the management system.

A Storm Water Management Plan for the project is provided in Appendix J.

8. A storm water retention basin would be constructed with sufficient dimensions to accommodate runoff from the impervious surfaces at the plant site generated by the local maximum daily rainfall event with a return frequency of 100 years or less. All runoff from the impervious surfaces would be directed to this retention basin prior to being released to the natural drainage system at flow rates equivalent to pre-development conditions. Storm water runoff likely to contain contaminants would flow first to onsite treatment facilities (such as an oil-water separator), as appropriate, prior to being directed to the storm water retention basin.
9. Construction specifications would require construction methods that prevent entrance or accidental spillage of pollutants into flowing or dry watercourses, and ground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.
10. Any construction wastewater discharged into surface waters would be essentially free of settling material. Wastewater from aggregate processing, concrete batching, or other construction operation would not enter drainages without water quality treatment. Turbidity control methods may include settling ponds; gravel-filter entrapment dikes; recirculation systems for washing aggregates; or other approved methods.

5.1.9 Transportation

To improve traffic flow at the one-lane underpass at the East Mesa Interchange during project construction, vehicles coming from opposing sides of the underpass would be required to give the right-of-way to the vehicle that arrived first at the underpass, in accordance with current traffic laws. At certain times during project construction (such as periods of heavy traffic at the underpass resulting from materials/equipment delivery coupled with construction worker transport vehicles and non-project traffic) traffic management would be implemented that could include, but not be limited to, the following:

1. Providing a traffic flag person at both ends of the one-lane underpass to direct traffic during periods of heavy traffic flow.

2. Scheduling project vehicles during peak construction periods so that they arrive at the one-lane underpass at intervals considered suitable to provide smooth traffic flow patterns.
3. Scheduling materials/equipment vehicle deliveries so that they do not arrive at the one-lane underpass during the beginning or end of a work shift.
4. See Noise and Air Pollution Prevention for traffic-related Standard Operating Procedures (SOPs).

5.1.10 Noise and Air Pollution Prevention

1. Contractors would be required to comply with all applicable federal, state, and local laws and regulations concerning prevention and control of noise and air pollution. Contractors are expected to use reasonably available methods and devices to control, prevent, and reduce atmospheric emissions or discharges of atmospheric contaminants and noise.
2. Contractors would obtain applicable air quality permits before starting construction or operating equipment that would result in regulated atmospheric emissions. The approvals require best available control technology for regulated emissions vented through stacks and vents and sources of fugitive dust emissions. Methods such as wetting exposed soil or roads with water or chemical dust suppressants where dust is generated by passing vehicles would be employed.
3. Contractors would be required to reduce dust from construction operations and prevent it from causing a nuisance to people. To accomplish this, the following measures would be implemented:
    - For the duration of construction activities, actively disturbed areas would be stabilized through the use of wet suppression as required to meet ambient air quality standards. Surfactants may be used to aid in wet suppression, thereby reducing the volume of water required to effectively treat the site. Disturbed areas of the site, including storage piles not being actively used for a period of 1 week or longer, would be stabilized as appropriate to minimize dust emissions. Active stabilization may not be required if soil moisture or natural crusting is sufficient to limit ambient impacts.
    - Bulk material stored onsite that is a possible fugitive dust source would be actively wetted, as needed, to minimize ambient impacts. It is anticipated that the majority of the material would be used onsite upon arrival. Should bulk materials require onsite storage for an extended period of time, the application of active wet suppression or the installation of a porous wind fence would be used as necessary to minimize fugitive dust generation.
    - Many of the unpaved surfaces, such as onsite access roads, would be covered with gravel and watered as necessary to minimize dust generation.

- Onsite fugitive dust emissions would be limited by reducing vehicle speeds and a combination of active and passive dust suppression measures. Additional mitigation practices would include the following:
  - Onsite access roads, parking lots, and lay-down areas would be maintained with a gravel cover to the maximum extent practical.
  - Traffic off maintained onsite access roads would be restricted and a posted speed limit of 15 miles per hour would be enforced to minimize emissions from unpaved road segments.
  - Unpaved road segments would be watered as necessary.
  - Gaseous emissions from mobile sources would be minimized by proper maintenance and tune-up of equipment.

5.2 Construction Compliance Monitoring and Maintenance

A preconstruction conference would be scheduled with the BLM prior to commencing construction activities, including any ground clearing activities. A BLM-approved independent third-party CIC assigned to monitor construction compliance requirements and construction contractors would attend this conference to review the stipulations of the ROWs grant, including the POD and the Restoration Plan (Appendix B). The CIC would provide agency-level oversight during construction and restoration activities. Construction monitoring protocols including a Compliance Monitoring Guideline would be developed upon the assignment of the CIC.

The Proposed Action would comply with the terms and conditions of all ROWs grants issued by the BLM. Additionally, appropriate BMPs and SOPs typically associated with the construction, operation, and maintenance of energy facilities including power plants, wellfields, pipelines, other utility corridors, and related facilities in this region of the western United States would be utilized. These BMPs and SOPs would be followed to avoid or minimize the potential for adverse environmental effects resulting from project-related activities. Special emphasis would be placed on protecting desert tortoise and their habitat. A Compliance Monitoring Guideline would be developed prior to commencement of construction activities. This guideline would include a comprehensive environmental awareness training program that would be presented to all workers connected with the project. The contents of the training program would be developed upon assignment of the CIC for the project in coordination with the BLM. Prior to construction or issuance of a Notice to Proceed, the Compliance Monitoring Guideline would be approved by the BLM authorized officer and the Toquop Energy Construction Manager.

Appendix A

Legal Description of the Proposed Action

Proposed Toquop Energy Center Legal Description

Access Road

T. 13 S., R. 69 E.

Sec. 28, SW ¼ NW ¼, NW ¼ NW ¼;

Sec. 29, NE ¼ NE ¼;

Sec. 20, SE ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 17, SE ¼ SE ¼;

Sec. 16, SW ¼ SW ¼, NW ¼ SW ¼;

Sec. 17, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 8, SE ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼, SW ¼ NE ¼, NW ¼ NE ¼;

Sec. 5, SW ¼ SE ¼, SE ¼ SE ¼, NE ¼ SE ¼, NW ¼ SE ¼, SW ¼ NE ¼, NW ¼ NE ¼, NE ¼ NW ¼, NW ¼ NW ¼.

T. 12 S., R. 69 E.

Sec. 32, SW ¼ SW ¼;

Sec. 31, SE ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 32, NW ¼ NW ¼;

Sec. 29, SW ¼ SW ¼, NW ¼ SW ¼, NE ¼ SW ¼, SW ¼ NE ¼, NW ¼ NE ¼, NE ¼ NE ¼;

Sec. 20, SE ¼ SE ¼;

Sec. 21, SW ¼ SW ¼, NW ¼ SW ¼, NE ¼ SW ¼, SW ¼ NE ¼, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 22, NW ¼ NW ¼;

Sec. 15, SW ¼ SW ¼, NE ¼ SW ¼, SE ¼ NW ¼, SW ¼ NW ¼, NW ¼ NW ¼, NE ¼ NW ¼;

Sec. 10, SE ¼ SW ¼, SW ¼ SE ¼, NW ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼;

Sec. 11, SW ¼ NW ¼, NW ¼ NW ¼, NE ¼ NW ¼;

Sec. 2, SE ¼ SW ¼, SW ¼ SE ¼, NW ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼;

Sec. 1, SW ¼ NW ¼, NW ¼ NW ¼, NE ¼ NW ¼.

T. 11 S., R. 69 E.

Sec. 36, SE ¼ SW ¼, SW ¼ SE ¼, NW ¼ SE ¼, SW ¼ NE ¼.

Power Plant

T. 11 S., R. 69 E.

Sec. 36, NE ¼ SW ¼, NW ¼ SW ¼, SE ¼ NW ¼, SW ¼ NW ¼;

Natural Gas Pipeline and Transmission Line Interconnection

T. 11 S., R. 69 E.

Sec. 36, SE ¼ SW ¼, SW ¼ SE ¼, NE ¼ SW ¼

Water Pipeline

T. 11 S., R. 69 E.

Sec. 36, NW ¼ SW ¼, SW ¼ NW ¼.

Sec. 35, SE ¼ NE ¼, NE ¼ NE ¼, NW ¼ NE ¼;

Sec. 26, SW ¼ SE ¼, NW ¼ SE ¼, NE ¼ SW ¼, SE ¼ NW ¼, NE ¼ NW ¼, NW ¼ NW ¼;

Sec. 23, SW ¼ SW ¼, NW ¼ SW ¼, SW ¼ NW ¼;

Sec. 22, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 15, SE ¼ SE ¼, SW ¼ SE ¼, NW ¼ SE ¼, SW ¼ NE ¼, SE ¼ NW ¼, NE ¼ NW ¼;

Sec. 10, SE ¼ SW ¼, SW ¼ SW ¼, NW ¼ SW ¼, SW ¼ NW ¼;

Sec. 9, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 4, SE ¼ SE ¼, SW ¼ SE ¼, NE ¼ SE ¼, NW ¼ SE ¼, SW ¼ NE ¼, NW ¼ NE ¼, NE ¼ NW ¼.

T. 10 S., R. 69 E.

Sec. 33, SE ¼ SW ¼, NE ¼ SW ¼, SW ¼ SW ¼, NW ¼ SW ¼;

Sec. 32, NE ¼ SE ¼, NW ¼ SE ¼, NE ¼ SW ¼, SE ¼ NW ¼, NE ¼ NW ¼;

Sec. 29, SE ¼ SW ¼, NE ¼ SW ¼, SE ¼ NW ¼, NE ¼ NW ¼;

Sec. 20, SE ¼ SW ¼, NE ¼ SW ¼, SE ¼ NW ¼, NE ¼ NW ¼;

Sec. 17, SE ¼ SW ¼, SW ¼ SE ¼, NE ¼ SW ¼, NW ¼ SE ¼, SW ¼ NE ¼, NW ¼ NE ¼;

Sec. 8, SW ¼ SE ¼, NW ¼ SE ¼, NE ¼ SE ¼, SE ¼ NE ¼, NE ¼ NE ¼;

Sec. 5, SE ¼ SE ¼;

Sec. 4, SW ¼ SW ¼, NW ¼ SW ¼, SW ¼ NW ¼, SE ¼ NW ¼.

Appendix B

Restoration Plan

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Acronyms

ACEC	Area of Critical Environmental Concern
BLM	U.S. Bureau of Land Management
CIC	compliance inspection contractor
FLPMA	Federal Land Policy Management Act
MSHCP	Clark County Multiple Species Habitat Conservation Plan
POD	Plan of Development
RMP	Resource Management Plan
ROW	right-of-way
SOP	Standard Operating Procedure

1.0 Introduction

This Restoration Plan for the Toquop Energy Project has been developed based on guidelines provided by the U.S. Bureau of Land Management (BLM). This plan is an integral part of the Plan of Development (POD) required for the project rights-of-way (ROW) grant. Project impacts can be reduced to a level of not significant provided that measures are undertaken to minimize and mitigate effects associated with facility construction. One important action is to restore surface disturbances resulting from construction to an acceptable level in order to speed up natural recovery. To reach that goal, this restoration plan has been developed for the Toquop Energy Project and will identify actions necessary to achieve land recovery goals. This plan will:

- Delineate restoration actions required by BLM based on land status and habitat sensitivity.
- Define and categorize levels of surface disturbance anticipated.
- Provide detail on restoration methodology and protocol to be implemented.
- Lay out the methodology and schedule for monitoring the results of restoration actions.

2.0 Authority

Authority for restoration is provided under the following:

- 43 CFR 2881.2

  "The authorized officer will impose stipulations which will include, but not be limited to requirements for restoration, revegetation, and curtailment of erosion of the surface of the land [and] requirements designed to control or prevent damage to the environment (including damage to fish and wildlife habitat)..."

- FLPMA Sec. 101(a)(8)

  Requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition..."

- Endangered Species Act of 1973, as amended Section 7(a)(2)

  Requires that federal agencies insure that any authorized action "will not result in the adverse modification" of critical habitat.

- Las Vegas Field Office Resource Management Plan (RMP), Record of Decision, VG2.

  "Restore plant productivity on disturbed areas of the public lands."

- Las Vegas RMP

  VS-1 Limit future impacts on the visual and aesthetic character of the public lands.

- Clark County Multiple Species Habitat Conservation Plan

  No net unmitigated loss or fragmentation of habitat for covered species.

- Lincoln County Multiple Species Habitat Conservation Plan

  Provide stable or increasing populations of desert tortoise and other covered species.

- United States Fish and Wildlife Service Biological Opinion for the Toquop Energy Project

  Mandates the development and implementation of a reclamation plan for 276 acres of temporarily disturbed lands and restoration of 65 acres outside the access road ROW within critical habitat of the Mormon Mesa ACEC.

- Desert Tortoise Recovery Plan

  Restoration of surface disturbance identified for all Desert Tortoise Recovery Units.

- Caliente Management Framework Plan Amendment and Record of Decision for the Management of Desert Tortoise Habitat

  Provides framework for management of 754,600 acres of public lands administered the BLM's Ely Field Office. Management will aid in the recovery of desert tortoise in this portion of Lincoln County.

3.0 Purpose and Need

The purpose of this restoration plan is to define actions needed to achieve BLM's objectives under the Caliente Management Framework Plan, the Caliente Management Framework Plan and Record of Decision for the Management of Desert Tortoise Habitat, and the Las Vegas RMP for land health standards, to recover habitat for Federally listed and sensitive species, and to provide protocols for implementing and monitoring required restoration of construction impacts from development of the Toquop Energy Project.

The BLM is a signatory to the Clark County and expected signator of the Lincoln County Multiple Species Habitat Conservation Plans (MSHCP). The Clark County MSHCP was approved in November 2000, while the Lincoln County MSHCP is in draft. The MSHCPs are intended under Section 10(a) of the Endangered Species Act to support the issuance of a permit that would allow "take" of threatened or endangered species resulting from development on non-Federal lands within Clark County and allow "take" of threatened or endangered species that are currently unlisted but that could become listed in the future. The Clark County MSHCP identifies 79 Covered Species under the permit and another 103 species are listed as Evaluation Species (more information is needed before these can be moved to the Covered Species list). The Lincoln County MSHCP identifies six desert species and eight riparian species for inclusion under the 30-year Section 10 Incidental Take Permit. The goal of both MSHCPs is to ensure the long-term conservation of Federally listed species and those species at risk of becoming listed, while allowing for the development of private lands in Clark and Lincoln Counties. The biological goal of the Clark County MSHCP is to have no net unmitigated loss or fragmentation of habitat for all species covered under the plan, which occur in all areas of Clark County including lands managed by BLM. The Goal of the Lincoln County MSHCP is to provide a mechanism to allow orderly growth and development in southeastern Lincoln County without jeopardizing the continued existence of threatened or endangered species or adversely modifying their designated critical habitat. The specific biological goal of the Lincoln County MSHCP is to help maintain stable or increasing populations of the desert tortoise and other Covered Desert Species on public land adjacent to private lands in the Plan Area.

4.0 Restoration Plan

4.1 Restoration Levels

This plan defines required levels of restoration effort and is based on the land management designation of the following areas: 1) the tortoise Area of Critical Concern (ACEC) area, and 2) the Multiple Use Managed Area. These area designations relative to project ROWs are indicated on Figure 1. Details of each area are as follows:

- **Tortoise ACEC Area.** Management on these lands is oriented toward actions which reduce human impacts to the landscape for the purposes of recovery of Federally listed or special status species (desert tortoise). Examples include visual resources classes 1 and 2, desert tortoise critical habitat, and Areas of Critical Environmental Concern. Outplantings would be limited and located in areas that could be accessed for plant maintenance.
- **Multiple-Use Managed Areas.** Multiple use areas are lands on which human activities are not precluded. Nonetheless, they support significant areas of undisturbed natural vegetation and provide important connectivity with more intensively managed areas. Additionally, at least six of BLM's most sensitive plant species occur in these multiple-use areas, and their habitat may require a higher level of restoration.

4.2 Disturbance Levels and Restoration Components

This plan defines two broad types of disturbance conditions: long-term use and temporary use. Temporary use areas may be broken down further into distinct levels based on the type of construction activity.

4.2.1 Long-Term Use Areas

The use of these areas is long term and the landscape is permanently altered through removing vegetation, site leveling, modifying natural drainages, fencing, and constructing facilities, towers, and other structures. Long-term use areas identified for the Toquop Energy Project include the power plant site, which will be permanently fenced, the wellfield, and portions of the existing access road that will require realignment.

Required restoration for the Toquop Energy Project includes salvage and transplant of cacti and yucca to a BLM-approved site. Within the right-of-way (ROW) of the existing access road, cacti and yucca that would be disturbed by construction activities will be located adjacent to the disturbance but within the ROW. Transportation offsite will be avoided if possible.

4.2.2 Temporary Use Areas

Temporary use is defined as using an area only for the amount of time it takes to construct the project. Examples include installation of pipelines, and parking vehicles, equipment, and materials in designated staging areas. The levels of disturbance, the impacts to the land, and the components of restoration required are described below.

4.2.2.1 D-1. Overland Drive and Crush

This type of disturbance is caused by accessing a site without significantly modifying the landscape. Vegetation is crushed but not cropped. Soil is compacted, but no surface soil is removed. Even though vegetation may be damaged and even destroyed, the surface soil and seed bank remains in place. Some crushed vegetation will likely resprout after disturbance ceases. These activities would result in minimal to moderate disturbance. General restoration actions for any areas disturbed in this manner during construction of the project include the following:

Pre-Construction

1. Plant propagation will be required in the tortoise ACEC
2. Cactus and yucca salvage and relocate outside of disturbance area (within the ROW)

Post-Construction

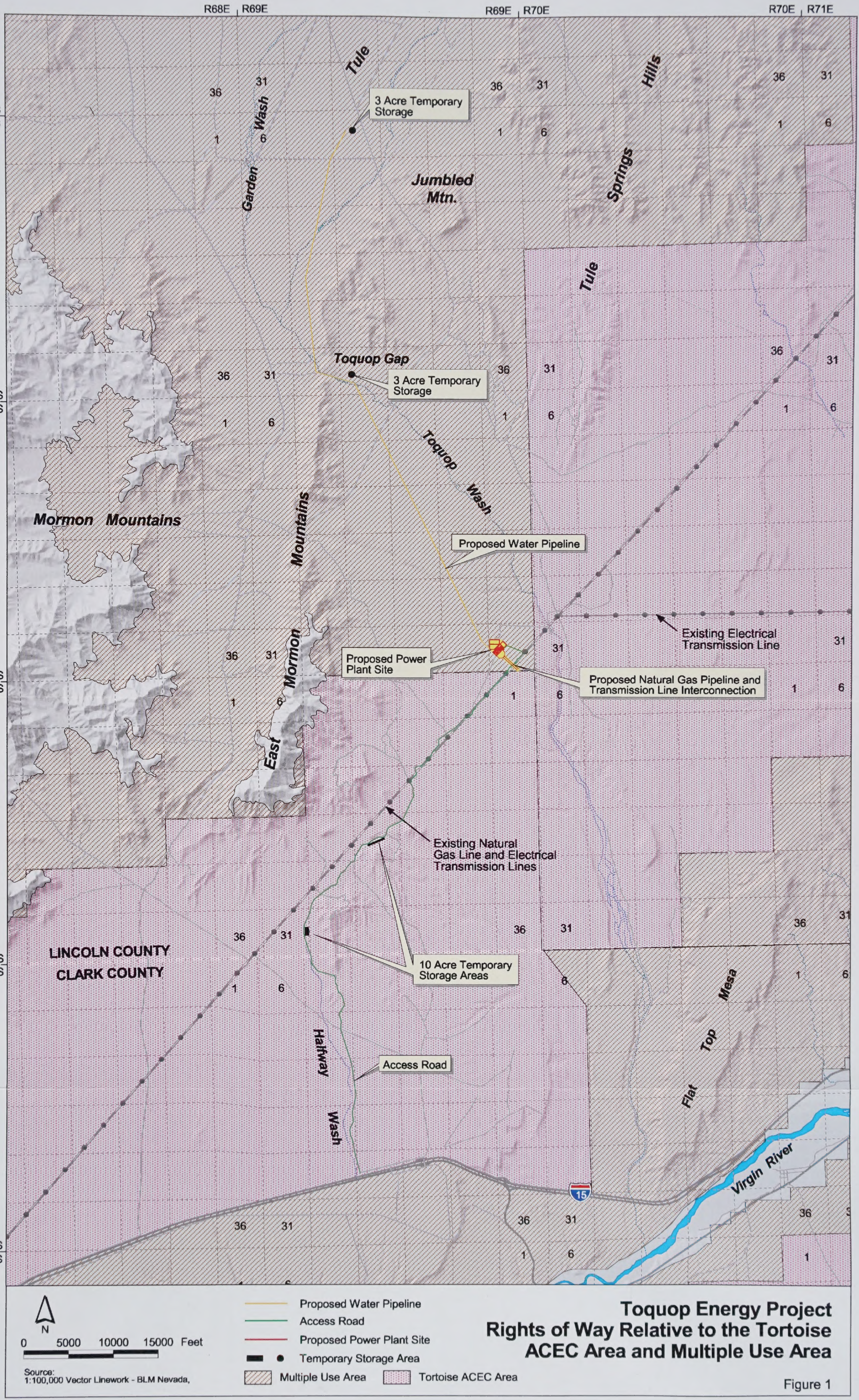
1. Earthworks: selectively decompact terrain, if required, or erase tracks
2. Shrub outplanting will be required in the tortoise ACEC
3. Stabilize soil surface
4. Replace debris or rock to reduce vehicle access
5. Replant cacti and yucca
6. Install restoration signs
7. Monitor

4.2.2.2 D-2. Clear and Cut

This type of disturbance is caused by accessing the project site, but having to brush off all vegetation in order to improve or provide suitable access for other equipment. All vegetation is removed, soils are compacted, but no surface soil is removed. Examples include temporary access roads where the road is improved for access and could include some examples from D-1 above. Clear and cut activities would result in moderate disturbance. General restoration actions for any areas disturbed in this manner during construction of the project include:

Pre-Construction

1. Plant propagation will be required in the tortoise ACEC
2. Cactus and yucca salvage and relocate outside of disturbance area (within ROW)
3. Windrow to the side of disturbance vertical mulch and large rocks


R68E
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T14S
Tule
Garden Wash
Jumbled Mtn.
Springs
Hills
Tule
3 Acre Temporary Storage
Toquop Gap
3 Acre Temporary Storage
Toquop Wash
Mormon Mountains
Mountains
East Mormon
Proposed Water Pipeline
Existing Electrical Transmission Line
Proposed Power Plant Site
Proposed Natural Gas Pipeline and Transmission Line Interconnection
Existing Natural Gas Line and Electrical Transmission Lines
10 Acre Temporary Storage Areas
LINCOLN COUNTY
CLARK COUNTY
Halfway Wash
Access Road
Flat Top Mesa
Virgin River
15
36
31
1
6
N
0
5000
10000
15000
Feet
Proposed Water Pipeline
Access Road
Proposed Power Plant Site
Temporary Storage Area
Multiple Use Area
Tortoise ACEC Area
CH2MHILL
H:\projects\toquop-EIS_alternative-maps.apr (Proposed Action Layout)

Source:
1:100,000 Vector Linework - BLM Nevada,

Toquop Energy Project
Rights of Way Relative to the Tortoise ACEC Area and Multiple Use Area

Figure 1

Post-Construction

1. Earthworks—decompact terrain
2. Replacement of vertical mulch and large rocks
3. Replant succulents
4. Shrub outplanting will be required in the tortoise ACEC
5. Stabilize soil surface
6. Permeon application, if needed
7. Install restoration signs
8. Fence construction, if needed
9. Monitor

4.2.2.3 D-3. Clear and Cut with Soil Removal

This type of disturbance is caused by removing all vegetation in the impact zone, the soils are compacted and the surface and possibly subsurface soils are displaced, resulting in heavy disturbance. Installation of the water pipeline, groundwater wells in the wellfield, and modification of portions of the existing access road for the project would be classified as this type of disturbance.

General restoration actions for any areas disturbed in this manner during construction of the project include:

Pre-Construction

1. Seed collection, if feasible. Otherwise, commercial seed will be procured
2. Plant propagation, if required
3. Cactus and yucca salvage and relocate outside of disturbance area (within ROW)
4. Windrow and separate to the side of disturbance surface vegetation (i.e., vertical mulch). Surface soil and subsurface soil layers will be stockpiled separately for post-construction replacement.

Post-Construction

1. Earthworks—Replace soils in the natural order (i.e., topsoils placed on top of subsurface soils), decompact terrain, recontour, and replace vertical mulch and rocks
2. Process, remove, or color caliche
3. Replant succulents
4. Reseed
5. Shrub outplanting will be required in the tortoise ACEC
6. Stabilize surface soil
7. Permeon application, if needed
8. Installation of restoration signs
9. Fence construction, if needed
10. Monitor

Table 1 indicates the estimated extent of long-term and temporary use areas required for construction of the project. Although the acreage of temporary use areas would not change without an amendment to the ROW grant, the level of disturbance may be different depending on surface and subsurface conditions, final design and engineering requirements, and equipment needs. Thus, any change to the disturbance type or level of disturbance indicated in Table 1 will be verified based on actual field conditions, and appropriate restoration actions will be implemented.

TABLE 1
Temporary and Permanent Effects from Construction and Operation of the Toquop Energy Project ROWs

Project ROW Component	Temporary Disturbance (Construction) (acres)	Restored Acreage (acres)	Total (Net) Permanent Disturbance (Operations) (acres)
Multiple Use Area			
Power plant	80	0	80 (fenced PP site)
Natural Gas Pipeline and Electric Transmission Line Interconnection	20	0	20
Access road	14	10	4
Water pipeline	90	90	0
Pipeline staging areas	6	6	0
Wellfield	17	0	17
Tortoise ACEC Area			
Access road	202	141	61
Staging areas	20	20	0
Project Total	**449**	**267**	**182**

Table 2 shows temporary disturbance areas for project ROWS in the multiple use area and the tortoise ACEC area relative to level of disturbance.

TABLE 2
Levels of Temporary Disturbance (Construction) for the Toquop Energy Project ROWs (acres)

Project ROW Component	Disturbance Level D-1	Disturbance Level D-2	Disturbance Level D-3
Multiple Use Area			
Power plant	NA	NA	NA
Natural Gas Pipeline and Electric Transmission Line Interconnection	NA	NA	NA
Access road	0	0	10
Water pipeline	0	45	45

TABLE 2
Levels of Temporary Disturbance (Construction) for the Toquop Energy Project ROWs (acres)

Project ROW Component	Disturbance Level D-1	Disturbance Level D-2	Disturbance Level D-3
Pipeline staging areas	0	6	0
Wellfield	NA	NA	NA
Tortoise ACEC Area			
Access Road	0	0	141
Staging Areas	0	20	0
Project Total	0	71	196

NA—Not applicable—all disturbance will be permanent.

4.3 Restoration Actions in Detail

The restoration plan is divided into four sections: 1) Survey and Planning Activities, 2) Pre-construction Actions, 3) Post-construction Actions, and 4) Monitoring. These are sequential actions for a project that is in the development stages.

4.3.1 Survey and Planning Activities

Survey and planning activities are required prior to the start of pre-construction restoration actions. Survey and planning activities will include the following:

1. Inventory
2. Project area survey
3. Identification of disturbance levels
4. Determination of restoration levels
5. Special status plant inventories
6. Seed collection or development of commercial seed mix
7. Live vegetative propagation

A Geographical Information System coverage map of the project area will be provided to the BLM prior to the start of pre-construction actions. This map will indicate proposed project components, special status plant habitat, temporary use areas, permanent use areas, and their corresponding disturbance and restoration levels. Table 3 provides a list of actions required within each restoration area.

TABLE 3
Actions Required within Restoration Areas

Restoration Classification	Tortoise ACEC Area			Multiple Use Areas		
	Temporary			Temporary		
Action	D1	D2	D3	D1	D2	D3
Pre-Construction						
Seed Collection		X*	X*			X*
Plant propagation	X	X	X			
Perennial shrub transplants	X	X	X			
Cactus salvage and relocate outside of disturbance area (within the ROW)	X	X	X			
Windrow to the side of disturbance surface vegetation		X	X		X	X
Windrow and segregate surface from subsurface soil and surface vegetation. In other words, two passes are required—vegetation and then soil.			X			X
Post-Construction						
Process, remove, or color caliche		X	X		X	X
Decompact terrain, recontour, and replace surface soils and vegetation		X	X		X	X
Earthworks: decompact terrain, 3-4 inches	X	X	X	X	X	X
Shrub outplanting	X	X	X			
Stabilize soil surface	X	X	X	X	X	X
Replacement of desert pavement and surface vegetation		X	X		X	X
Backfill subsurface soil, then surface soil, and vertical mulch	X	X	X	X	X	X
Replant succulents	X	X	X	X	X	X
Reseed	X	X	X	X	X	X
Permeon application			X			X
Signage	X	X	X	X	X	X
Fence construction		X	X		X	X
Monitoring	X	X	X	X	X	X

*Can purchase seed from commercial seed vendor, if collecting seed from the site is not feasible.

1. **Existing potential access roads and disturbance sites are identified in the POD.** Potential stockpile areas will also be identified.

2. **Survey project.** All aspects of the project will be surveyed, including but not limited to permanent facility locations, permanent access roads, temporary use areas, stockpiling areas, spur roads, temporary access roads, and vegetation heel-in sites, if needed.

3. **Identification of Disturbance Levels (D1 – D3).** Levels of disturbance have been applied based on calculated total acres of temporary and permanent disturbance.

4. **Determination of Restoration Areas.** The level of restoration required has been determined in consultation with the BLM. Required actions for each area are summarized in Table 3. A summary of the Restoration Levels and Disturbance Levels for all phases of the project will be provided in the Construction, Operation, and Maintenance Plan.

5. **Cacti and Yucca.** Cacti and yucca are the only special-status species known to occur in the proposed project area.

6. **Seed Collection or Seed List.** An appropriate seed mix for the project area, as determined by the BLM, is shown in Table 4. Seed collection activities will be conducted prior to commencement of construction activities by a qualified seed company or other BLM-approved method (e.g., trained volunteers). Standard seed collection protocol will be followed. Sites for seed collection can be anywhere on public lands within the Ely Field Office and Las Vegas Field Office's jurisdiction with prior approval. Only mature seed will be collected. Pounds of seeds required will be based on the approved seed mix and estimate of acres of temporary disturbance for the project. No more than 50 percent will be collected from any one population. Seeds will be collected, cleaned, tested for pounds live seed, certified weed free, and stored by the contractor until they are ready for use, unless other arrangements approved by BLM are made. Seeds will be stored dry in containers that will be labeled with the exact location, date of collection, and collector. Containers must be located in a rodent- and insect-proof location. Some of the material may be pellatized prior to application (required in the tortoise ACEC area). Necessary permits will be provided by BLM and the Nevada Division of Forestry, if needed.

TABLE 4
Seed Mix for Restoration of Mojave Desert Shrubland*

Species and Common Name	Number per acre	Percentage by Weight
Hilaria rigida (Galleta grass)	3.0	17.5
Oryzopsis hymenoides (Indian ricegrass)	3.0	17.5
Sphaeralcea ambigua (desert globemallow)	1.5	9
Ambrosia dumosa (white bursage)	3.0	18
Larrea tridentata (Creosote)	1.0	6
Ephedra nevadensis (Nevada ephedra)	2.0	12
Atriplex canescens (Four-wing saltbush)	2.0	12
Total	16.5	100

*All amounts shown in the table are based on the weight of pure live seed.

7. **Live Plantings.** Live plantings will be required in tortoise ACECs. Native plant species will be propagated by a qualified nursery (Attachment 2). The live material will be maintained at the nursery for at least 1 year in tall pots before being outplanted in the field. Material will be free of noxious weeds before being outplanted. The total number of plants needed and locations where they will be outplanted will be directed by BLM.

4.3.2 Pre-Construction Actions

The following is a description of restoration actions that will be performed prior to the construction of the project. These include: 1) succulent plant salvage, 2) vegetation propagation, 3) salvaging vertical mulch and rock, and 4) salvaging surface and subsurface soils. Each is described below.

1. **Succulent Plant Salvage.** The BLM and the ROW applicant will identify, onsite with flagging tape, all cacti and yucca that are subject for removal and will mark the north orientation for all cacti. During the survey, all yucca clusters will be counted as separate plants. A list describing quantity and species will be forwarded to the BLM upon completion of the survey. For the Tortoise ACEC and Multiple Use Restoration Areas, the Las Vegas Field Office requires that all cacti, yucca, and agave be salvaged **except** for cylindropuntia cacti (aka cholla), including *Opuntia echinocarpa, O. acanthocarpa*, and *O. ramosissima* over 3 feet tall. These taller cholla are not required to be salvaged and will instead become a part of the "vertical mulch." All cholla under 3 feet tall will be salvaged. Standard Operating Procedures (SOP) for cacti and yucca salvaging are provided in Attachment 2.
2. **Nursery Site.** Prior to any ground disturbance, an organized, accessible, and secure nursery site of appropriate size will be identified and established. This nursery will provide ease of care and maintenance for the plant material. Site-specific nursery requirements may be applicable but should be designed to minimize any additional disturbance to the project site. All salvaged plant material will be replanted in vertical trenches that have a depth of 18 inches or larger. Yuccas should be planted with 1-foot spacing. All succulents will be dug bareroot and replanted within 24 hours at the nursery site. Yucca clusters will be broken into individual stems prior to replanting at the nursery. All cacti will be planted with the same north orientation as they originally grew (+/- 15 degrees). All small cacti will be watered thoroughly one time upon being replanted to the nursery. All yucca stems will be watered initially with DriWater being applied at a rate of 1 quart for every foot in height. DriWater cartons are to be buried completely. A one-time watering approximately 15 days after planting will be conducted to remove or minimize any air pockets and ensure proper soil compaction. Care should be taken to properly compact all soil around the roots of plants that are directly transplanted in the nursery.
3. **Salvage of Biological Crust.** If any significant stands of biological crust occur in the tortoise ACEC, the protocols of removal and re-application will be followed. The crust will be salvaged either by hand or with very small equipment. The crust will be placed dry in plastic buckets and kept dry until ready to place back on the soil surface.

4. **Salvage Vertical Mulch and Rocks.** For areas that require clearing and cutting, the vegetation will be mechanically windrowed to an area outside the disturbance boundary (vertical mulch). This will include any cholla over 3 feet tall not salvaged for restoration areas. Large rocks and boulders will also be removed to the side. Care should be taken to prevent the disturbance of the natural patina or desert varnish of these rocks.

5. **Salvage of Surface and Subsurface Soils.** After required plants have been salvaged from the site, conduct topsoil salvage by removing the top 4 inches (+/- 2 inches) of soil, including all rocks and vegetation. Rocks over 6 inches can be removed and stockpiled outside the disturbance areas (within the ROW). This topsoil should be labeled as such and protected from erosion and inadvertent use as fill. Topsoil will never be mixed with subsoil. When stockpiled, topsoil will be treated with a vegetal-based tackifier to a 2-inch wetting depth to minimize erosion. If bedrock close to surface will not allow for full salvage, salvage what is available. Different soil types will be stockpiled separately (gypsum and sand for example). Overall handling will be kept to a minimum.

4.3.3 Post-Construction Actions

The following is a description of actions that will be implemented after the completion of construction activities. These actions include: 1) earthwork, 2) replacing windrowed plant material and rocks, 3) stabilizing surface and replanting succulents, 4) reseeding, 5) shrub outplanting, and 6) permeon application. Each is described below.

1. **Earthwork.** Earthwork includes burying subsurface soils (including caliche), applying surface soils, and decompacting terrain.

   For any project construction actions that will disturb surface and subsurface soil (i.e., water pipeline and access road improvements), the segregated material windrowed on either side of the trench should be replaced back into the trench in order with the subsurface below the surface soils. If significant caliche is encountered during the excavation, it will be crushed into fine material before replacing back into the trench. Small amounts of caliche may be replaced into the trench; however, there must be sufficient finer material to achieve natural terrain contours. After re-contouring to natural grade and loosening the subsurface soil, surface soils will be replaced over the top of the subsurface materials.

   Where any compaction exists, the surface will be scarified, tilled, or harrowed to a depth of 6 inches, as appropriate (for example, not applicable to rock faces, severe slopes, or cliff areas). Depth of compaction relief will depend onsite-specific conditions. Decompacting and ripping will be conducted to avoid "corn rows." Cross-ripping is preferable and care should be taken to prevent inverting the soil layers. The surface soil will be re-distributed following site re-contouring and preparation (decompacting and ripping). Small pieces of surface caliche may be buried to a minimum of 24 inches deep. Large pieces of caliche will be completely removed and disposed of in an appropriate landfill. Soil will be wet to a depth of 2 inches to prevent further erosion. The site will be left adequately rough after surface soil placement to provide micro sites for seed germination and to reduce soil movement. Deep sandy soils do not need to be decompacted and will not be ripped.

Replaced surface soil will be left in an unscreened condition in an effort to minimize erosion. Additional erosion control and soil stabilization may be required to minimize soil movement, especially for heavily sloped areas or for fine-textured soils. Vegetal-based soil binder will be used on any steep stockpile slopes to reduce movement and erosion. Surface soil will not be handled excessively during windy conditions.

2. **Rocks and vertical mulch.** For areas that have been cleared, vegetation that was windrowed to the outside of the disturbance boundary will be replaced back onto the site. Large rocks and boulders removed to the side of the disturbance will be placed back with the darkened side facing up in a natural-appearing pattern. Permeon may be applied to rocks to enhance the desert varnish when necessary.
3. **Desert crust.** The timing of re-application of crusts is critical for the success of crust recovery. Soil crust salvaged from a site must be re-applied in the late fall to early spring. After the surface soil has been replaced, the salvaged crust will be spread evenly over the surface and watered once per day over the next 3 days.
4. **Final Transplant of Succulents.** All salvaged plant material will be replanted in a natural pattern to a depth of 18 inches or greater. Mojave yuccas will be re-planted in groups of three. All cacti will be planted with the same north orientation as they originally grew (+/- 15 degrees). All small cacti will be watered thoroughly one time upon being transplanted into the field. All yucca stems will be thoroughly watered initially and DriWater will be applied at a rate of 1 quart for every foot in height. DriWater cartons are to be buried completely. A one-time watering approximately 15 days after planting will occur to remove or minimize any air pockets and ensure proper soil compaction. All soil around roots will be properly compacted. Transplanting and maintenance of plant material will be conducted such that 80 percent survivorship after 2 years is achieved.
5. **Seeding method.** Harvested seed will be pelletized prior to application for Restoration Area R-2, unless approved otherwise by BLM. The seed pelletizing process will include macrobiotic components specially laboratory grown for Mojave habitats. Per-acre application of pelletized seed will be a minimum of 250 pounds of pellets to a minimum of 12 pounds of site-specific harvested seeds. Dry pelletized material can be applied by hand or mechanical dispersal. Hydromulch or hydroseeding may be required if seasonal conditions are appropriate and do not contribute to the spread of exotic annual grasses. Broadcast seeding is an appropriate method for the Multiple Use Restoration Areas.
6. **Shrub outplanting.** Methods for transplanting shrubs should be such that a success rate of at least 80 percent survival after 2 years is achieved.
7. **Permeon application.** Depending upon the soil type, permeon may be required in disturbance levels D2 and D3 if the soil surface contrast is high. Permeon application rates and color tint will be site specific and may require both a blanket operation and spotting treatments dependant on the adjacent natural landscape. Product is applied

with backpacks or a truck-mounted sprayer if access to the area adjacent to the restoration site remains open.

8. **Signing.** All Restoration Areas will have signs installed at regular intervals to deter vehicular damage to the site. BLM will provide the restoration signs and t-posts. Sign locations will be provided to the BLM following completion of post-construction restoration procedures.
9. **Fencing.** A portion of the water pipeline will be fenced to ensure that the reclamation efforts are not negatively impacted by livestock grazing. The fence will be constructed parallel to the waterline between the northern portion of the Gourd Springs Allotment and the Toquop Gap. The fence will be constructed to standard BLM Specifications and removed when reclamation efforts no longer require protection.

4.3.4 Monitoring

A monitoring program to assess the success of restoration actions will be implemented for the project. Monitoring of the project will be site specific and therefore requirements will be provided with the project-specific restoration protocol. The monitoring process is currently being developed by the Science Advisor to the Clark County MSHCP, U.S. Geologic Survey, and BLM. Methods for restoration monitoring are intended to be reasonable and practical with enough statistical rigor to ensure effective results within 5 to 7 years. Methods will be designed to quantify the level of recovery for the treated sites by comparing the recovery progress with adjacent undisturbed habitat of similar soil and vegetative characteristics.

Upon completion of the monitoring design, the BLM will provide a monitoring handbook that will include detailed methods for establishing monitoring sites, monitoring protocol, criteria for success, steps to take if success criteria are not being met, report formats and requirements, and datasheets.

Restoration success in the tortoise ACEC will be defined as the achievement of 60 percent dominant diversity of monitored sites within the project area in 5 years, as compared with selected undisturbed reference sites. In multiple use areas, the success criteria is 50 percent dominant diversity over the same period of time. If annual monitoring shows that the trend toward recovery is not being achieved, then actions will be implemented prior to year 5 to assist in the recovery of those lands.

A qualified compliance inspection contractor (CIC) will be assigned to the project to ensure compliance with the goals of this plan and monitoring success. The CIC will be approved by the BLM and will implement the terms and conditions of the POD, the biological opinion, and any other stipulations of the ROW grant. Construction monitoring protocols including a Compliance Monitoring Guideline would be developed upon the assignment of the CIC.

ATTACHMENT 1

Definitions

range site—Interpretive units into which landscapes of native vegetation are separated for study, evaluation and management

vertical mulch—Use of bare-root live and dead plant material to visually screen and provide microhabitat for collecting seed, moisture and reducing transpiration rates on newly reclaimed disturbances.

windrowing—Pushing soil off to one side within the ROW in area free from disturbance that will protect surface and subsurface soil from disturbance until replaced into disturbed sites.

permeon—Non-hazardous stain used on rocks and soil to simulate a native coating and color.

discing—Aerating soil to decompact and allow for nutrient cycling and seed capture.

biological crust—Surface material made up of live organisms, including bacteria, algae, lichens, and mosses. Crusts are important for soil surface stabilization, nutrient cycling, and soil-water relations.

ATTACHMENT 2

Salvage, Stockpiling, and Final Transplanting of Cacti and Yucca

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Salvage

The salvaging contractor shall identify on site with flagging tape all cacti and yucca that are subject for removal and will mark the north orientation for any barrel or Joshua tree. The following plants will be salvaged: 1) all yucca, 2) barrel cactus, 3) hedgehog, 4) cottontops, 5) all beavertail cactus; and 6) all cholla less than 3 feet in height.

Cholla over 3 feet in height and Joshua trees over 10 feet in height do **not** need to be salvaged. This material will be used as vertical mulch and spread over the surface of the restored areas to prevent possible trespass.

During the survey, all yucca clusters shall be counted as separate plants. Because the material will not be used immediately, it needs to be stockpiled in a location that can be protected (fenced). Cacti and yucca are very shallow-rooted.

- Cacti should be dug by hand and carefully removed in order to not damage roots.
- Yucca must be salvaged with heavy equipment (for example, front-end loader). The material must be carefully extracted to not damage any of the roots, stems, or lower part of the plant. The material must be transplanted to a stockpiling area immediately.

Stockpiling

The salvage can be transferred to prepared 3-foot-wide, 18-inch-deep stockpiling trenches of any desired length. If using multiple, parallel trenches, they should be far enough apart to allow heavy equipment access to each trench. Trenches shall be watered thoroughly prior to transplanting material. In planting cacti and yucca, they should be placed in the trench and planted with native soil. Care should be taken to properly tamp down and compact all soil around roots of plants to remove all air pockets. A depression around each plant should be formed to hold water. After cacti are transplanted, they shall be watered thoroughly one time. A one-time watering approximately 15 days after planting shall occur to remove or minimize any air pockets and assure proper soil compaction. Yucca will be placed in the trenches and the soil tamped by hand around the base of the plant so that there are no air pockets. To reduce watering, DriWater can be applied to each yucca. DriWater is a gelatinous polymer that slowly breaks down to water over time. DriWater comes in biodegradable cartons and is applied by cutting the top of the carton and placing it upside down around the plant to be watered. The area around the plant must be thoroughly wet to activate the DriWater. The DriWater is applied around the base of the plant at a rate of 1 quart for every foot in plant height.

DriWater cartons are to be buried completely. At the surface, a watering well will be formed around the plant. Afterward, the plant will be watered thoroughly again. A 9-inch soil moisture probe (which can be obtained from any commercial plant nursery) will be used after 2 weeks to assess the moisture of the soil to see if further watering is needed. If the probe reads "dry" on the moisture scale, then a second watering will be done.

Final Planting at Landscape Sites

All salvaged plant material shall be replanted in a natural pattern. Large yucca will be carefully removed from the stockpiling area, taking care to not damage stems, roots, or the base of the plant. A hole at least 2 feet deep and 3 feet wide shall be prepared for each single stem yucca. Multiple stem plantings will be accordingly larger to accommodate the stem size. The hole will be filled with water and allowed to drain once. Then the hole will be filled with water again and then back-filled with soil to form a muddy matrix to about 18 inches from the surface. The yucca will then be planted and the soil tamped around the plant so that there are no air pockets. DriWater will be applied around the plant at a rate of 1 quart for every foot in height. DriWater cartons are to be buried completely. At the surface, a watering well will be formed around the plant. Afterward, the plant will be watered thoroughly again. A 9-inch soil moisture probe (which can be obtained from any commercial plant nursery) will be used after 2 weeks to assess the moisture of the soil to see if further watering is needed. If the probe reads "dry" on the moisture scale, then a second watering will be done. Mojave yuccas will be re-planted in groups of three or more for a natural effect. All small cacti shall be watered thoroughly one time upon being transplanted into the field. Transplanting and maintenance of plant material will be done such that 80 percent survivorship after 2 years is achieved.

Appendix C

Preliminary Access Road Specifications

Preliminary Access Road Specifications

Construction and operational Rights-of-Way (ROWs) for the access road were calculated based on preliminary design information. Of the total 14.4 miles of existing access road, approximately 5.9 miles would require varying degrees of realignment to accommodate construction and operational traffic, while the remaining 8.5 miles of the access road would follow the existing alignment (see attached Figures).

To determine the area affected during construction of the access road, and thus the construction ROW, the length of each segment by milepost was multiplied by the estimated width of the construction impact area and converted to acres, as shown in Table 1. A total of approximately 246 acres, including the existing access road, would be impacted during construction, thus requiring a construction ROW of the same dimensions. A net new construction disturbance of 216 acres results when the 30 acre area currently occupied by the existing access road is subtracted.

TABLE 1
Construction Right-of-Way for the Toquop Powerplant Access Road
All the following impacts for the access road are given in total acres impacted for the specific roadway sections

Mile Marker - Begin Impacts	Mile Marker - End of Impacts	Total Affected Area (Acres)
0.00	3.40	30.4
3.40	3.55	4.7
3.55	3.60	3.1
3.60	4.20	13.4
4.20	4.77	22.0
4.77	6.20	11.8
6.20	6.55	3.5
6.55	7.00	3.3
7.00	7.55	15.4
7.55	7.65	2.1
7.65	9.90	23.4
9.90	10.10	12.6
10.10	10.35	10.2
10.35	10.45	2.9
10.45	10.70	3.7
10.70	11.10	4.4
11.10	11.30	10.4

TABLE 1
Construction Right-of-Way for the Toquop Powerplant Access Road
All the following impacts for the access road are given in total acres impacted for the specific roadway sections

Mile Marker - Begin Impacts	Mile Marker - End of Impacts	Total Affected Area (Acres)
11.30	11.50	5.6
11.50	13.50	36.9
13.50	13.80	17.8
13.80	14.37	8.1
	Total Acres Impacted	**245.6**

Operational (long-term) ROW includes areas that will be occupied by the paved road, shoulders and drainage conveyance features. To determine the area affected during operation, and thus the total operational ROW, the lengths of each of the 14 realignment segments were multiplied by 96 feet, the estimated average operational width for all realignment areas. The total operational right-of-way resulting from road realignments is estimated to equal 69 acres. Calculations for each realignment segment of the access road are provided in Table 2.

TABLE 2
Operation Right-of-Way for the Toquop Powerplant Access Road Realignment Areas
*The following ROW segments for the access road are given in total acres impacted for the specific roadway realignment sections**

Realignment Segment	Mile Marker - Begin ROW	Mile Marker - End of ROW	Total Length (miles)	Total ROW Area (Acres)
1	3.4	3.6	0.2	2.3
2	4.0	4.1	0.1	1.2
3	4.3	4.6	0.3	3.5
4	7.0	7.6	0.6	7.0
5	7.7	8.9	1.2	14.0
6	9.9	10.3	0.4	4.7
7	10.4	10.7	0.3	3.5
8	10.7	11.1	0.4	4.7
9	11.1	11.5	0.4	4.7
10	11.5	12.0	0.5	5.8
11	12.2	12.7	0.5	5.8
12	13.0	13.3	0.3	3.5
13	13.5	13.9	0.4	4.7

TABLE 2
Operation Right-of-Way for the Toquop Powerplant Access Road Realignment Areas
*The following ROW segments for the access road are given in total acres impacted for the specific roadway realignment sections**

Realignment Segment	Mile Marker - Begin ROW	Mile Marker - End of ROW	Total Length (miles)	Total ROW Area (Acres)
14	14.0	14.3	0.3	3.5
		Total ROW Acres	**5.90**	**68.90**

*Refer to overview figure for alignment locations

Operational (long-term) rights-of-way for the remainder of the access road were determined by multiplying the length of the road not requiring realignment (8.5 miles) by the final right-of-way width of 67 feet (includes paved road, shoulders, and drainage conveyance features). The total permanent right-of-way for the non-realigned road segments is estimated to equal 69 acres.

Thus, adding estimated right-of-way areas for both the realigned areas (69 acres) and the standard road widening areas (69 acres) results in a total of 138 acres of land affected by the long-term right-of-way for the access road, as indicated in Table 1 of the Plan of Development. Of this total, approximately 65 acres will be permanently affected by paved road only.

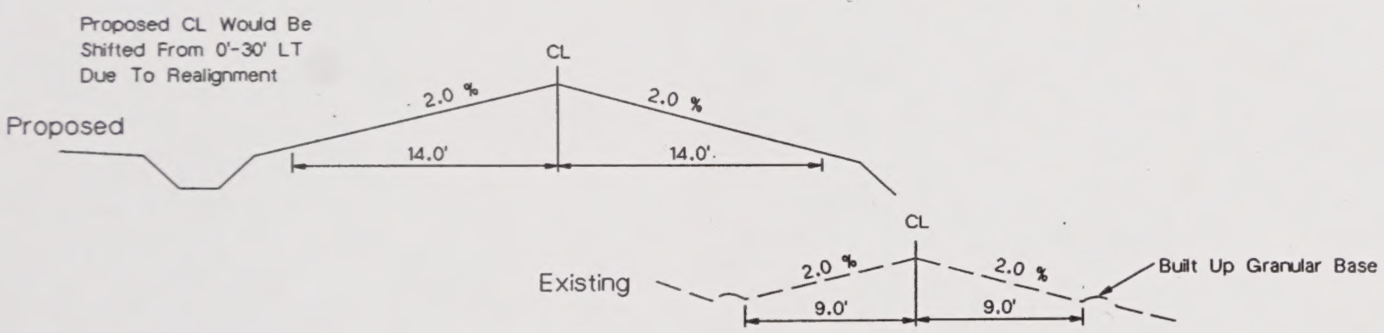
Realignment Area #1

Reason For Realignment:

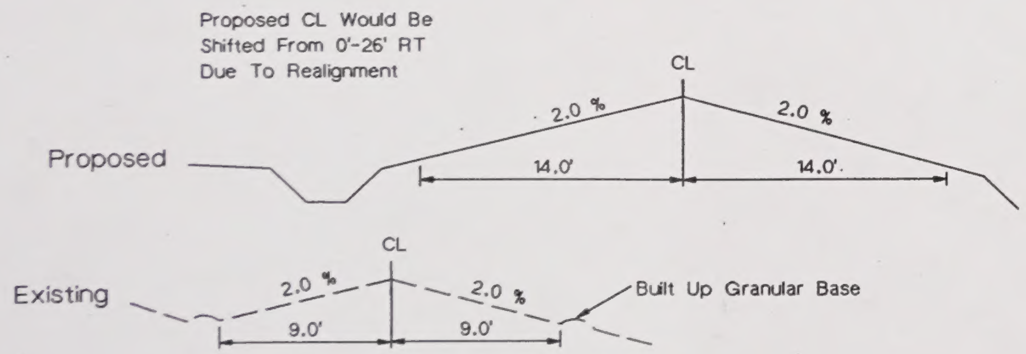
From mile marker 3.4 to 3.6 the current alignment has substandard horizontal curves (radii less than the design standard of 300') with restricted horizontal sight distance. Also, the current vertical profile rises at approximately 12%.

To correct the deficiencies of this portion of the alignment, the horizontal curve radii would be increased and the vertical profile would be flattened to meet design standards.

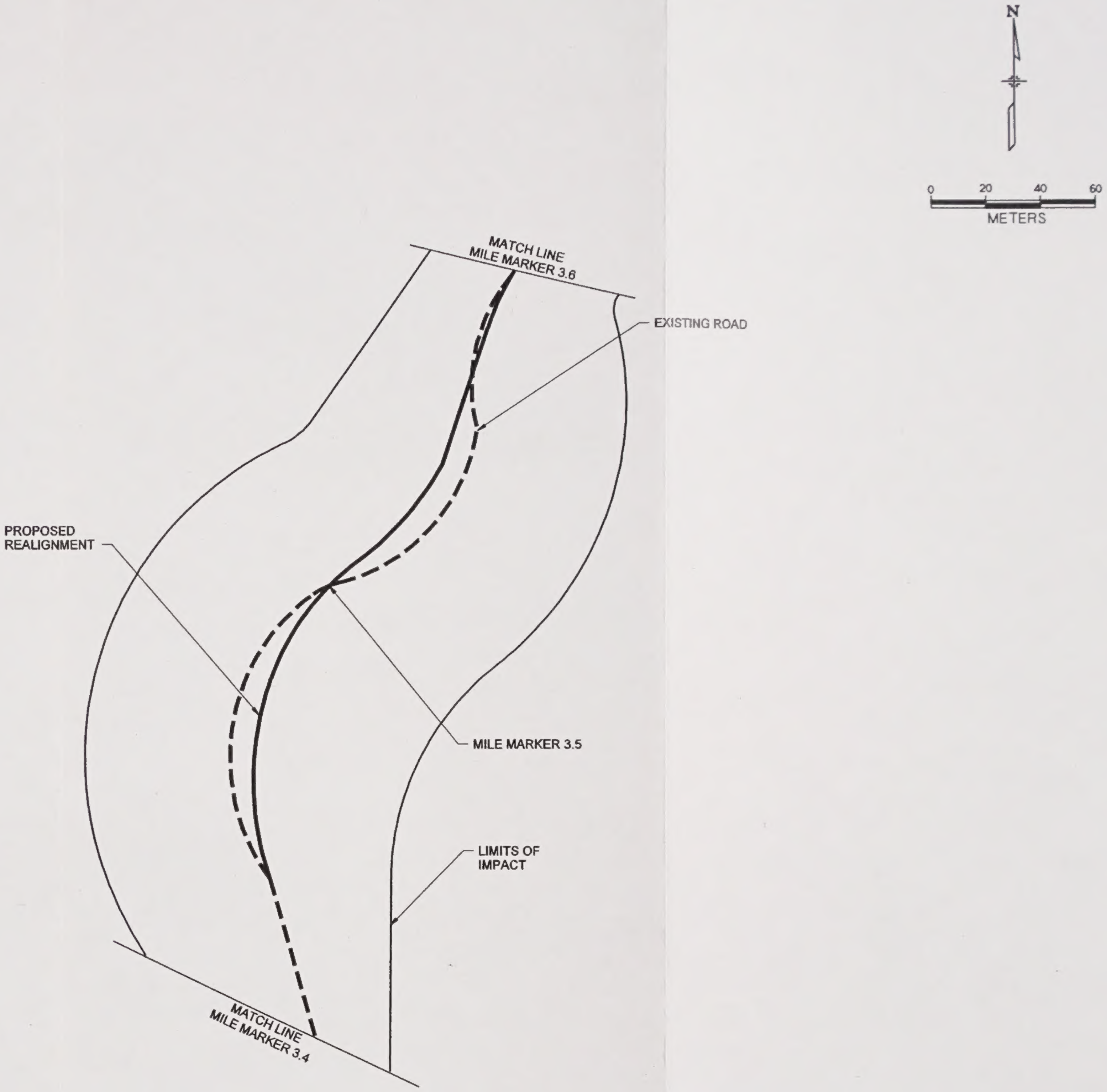
Mile Marker 3.5 To 3.6


Proposed CL Would Be Shifted From 0'-30' LT Due To Realignment
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
9.0'
9.0'
Built Up Granular Base

Mile Marker 3.4 To 3.5


Proposed CL Would Be Shifted From 0'-26' RT Due To Realignment
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
9.0'
9.0'
Built Up Granular Base

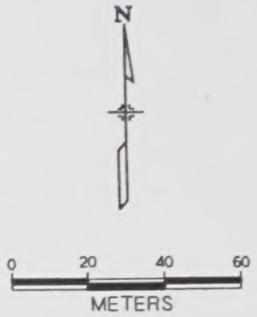
TYPICAL SECTIONS - REALIGNMENT AREA #1


N
0
20
40
60
METERS
MATCH LINE
MILE MARKER 3.6
EXISTING ROAD
PROPOSED REALIGNMENT
MILE MARKER 3.5
LIMITS OF IMPACT
MATCH LINE
MILE MARKER 3.4

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

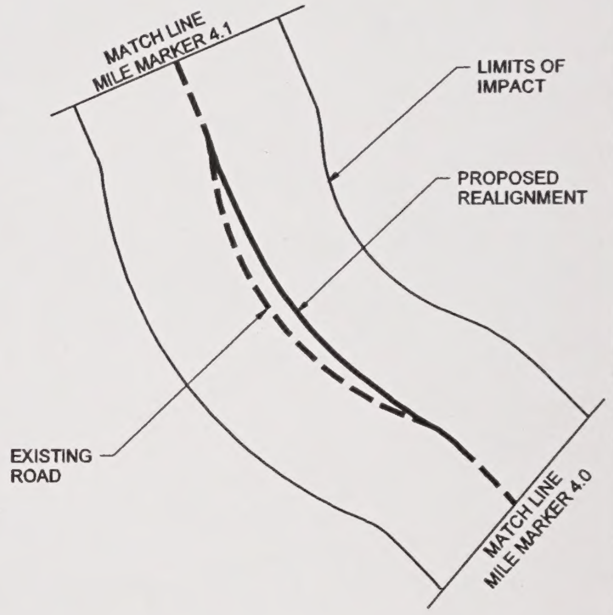
Realignment Area #2


N
0
20
40
60
METERS

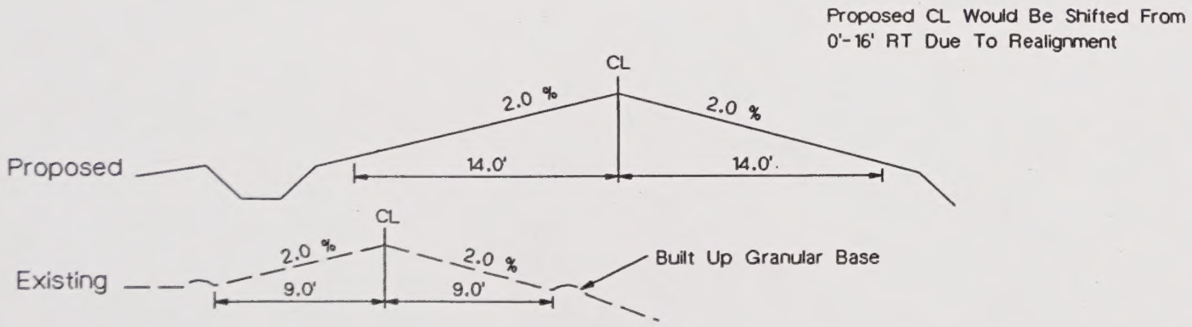
Reason For Realignment:

From mile marker 4.0 to 4.1 the current alignment has substandard horizontal curvature (radius less than the design standard of 300') with restricted horizontal sight distance.

To correct the deficiencies of this portion of the alignment, the horizontal curve radius would be increased to meet design standards.


MATCH LINE
MILE MARKER 4.1
LIMITS OF IMPACT
PROPOSED REALIGNMENT
EXISTING ROAD
MATCH LINE
MILE MARKER 4.0

Mile Marker 4.0 To 4.1


Proposed CL Would Be Shifted From 0'-16' RT Due To Realignment
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
9.0'
9.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #2

NOTES

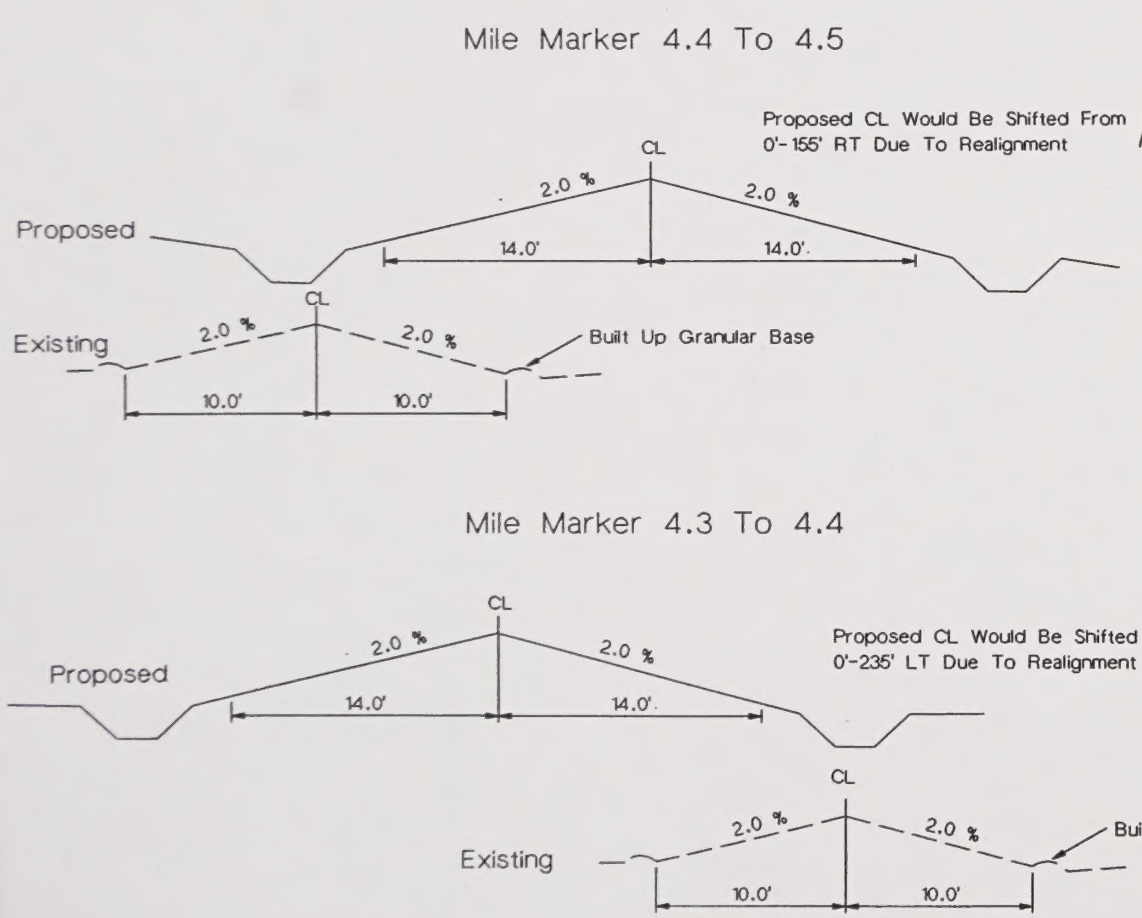
1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #3

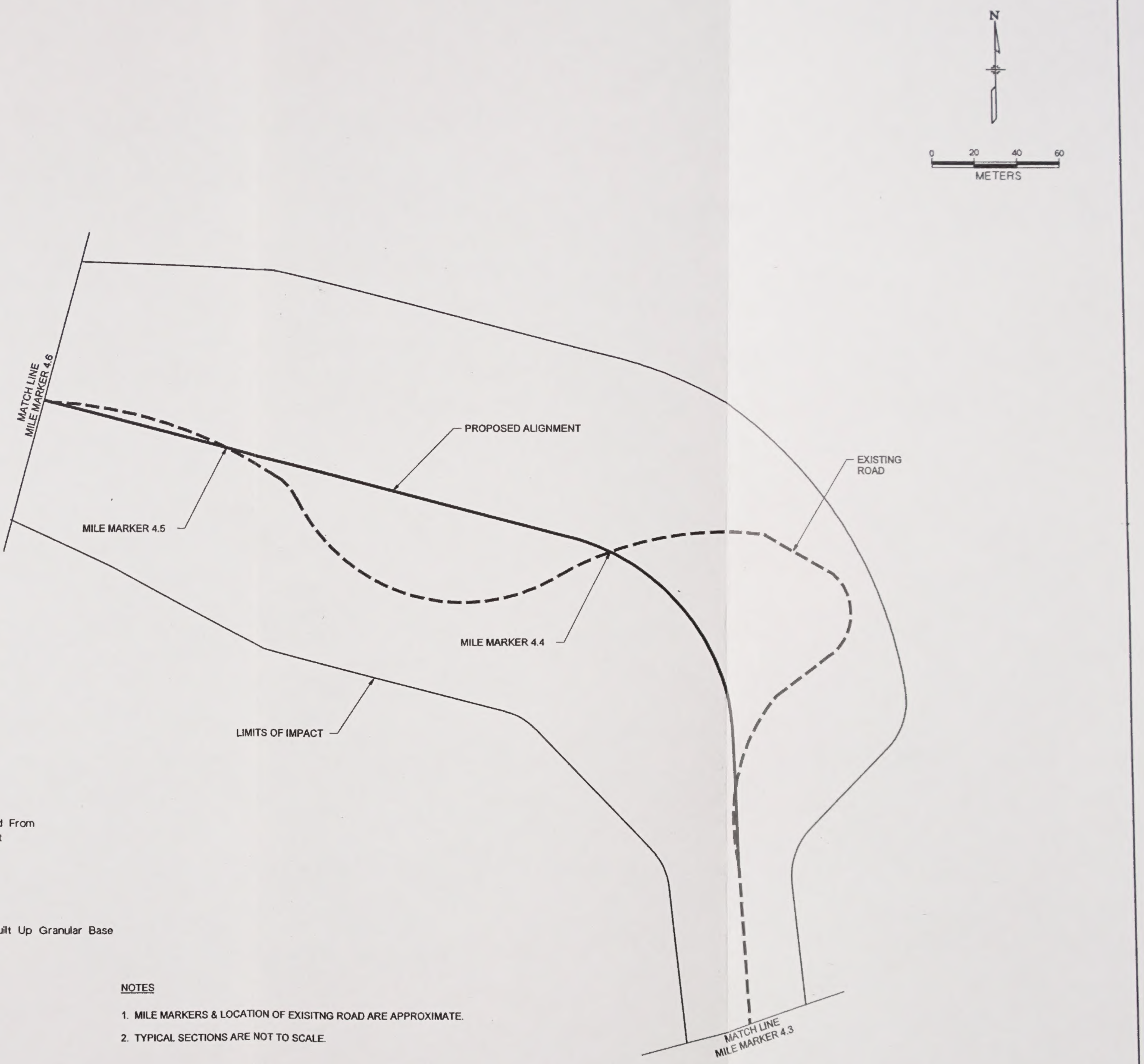
Reason For Realignment:

From mile marker 4.3 to 4.6 the current alignment has substandard horizontal curves (radii less than the design standard of 300') with restricted horizontal sight distance

To correct the deficiencies of this portion of the alignment, the horizontal curve radii would be increased to meet the design standards.


Mile Marker 4.4 To 4.5
Proposed CL Would Be Shifted From 0'-155' RT Due To Realignment
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
10.0'
10.0'
Built Up Granular Base
Mile Marker 4.3 To 4.4
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-235' LT Due To Realignment
Existing
CL
2.0 %
2.0 %
10.0'
10.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #3


N
0
20
40
60
METERS
MATCH LINE
MILE MARKER 4.6
PROPOSED ALIGNMENT
EXISTING ROAD
MILE MARKER 4.5
MILE MARKER 4.4
LIMITS OF IMPACT
MATCH LINE
MILE MARKER 4.3

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #4

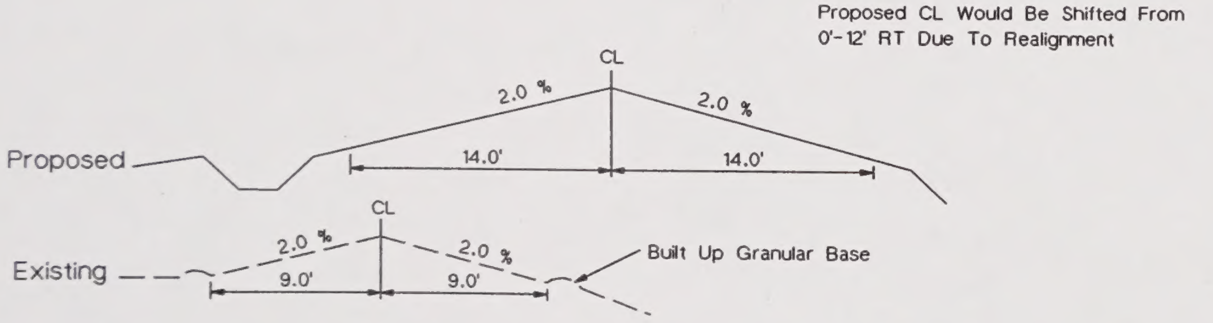
Reason For Realignment:

Due to road widening, from mile marker 7.0 to 7.5 the current centerline of the alignment would be shifted approximately from 0'-10' to the left to avoid the steep side slopes that are present on the right side of the road. Also, the current vertical profile rises at approximately 13% and has restricted vertical sight distance.

From mile marker 7.5 to 7.6 the current alignment has substandard horizontal curvature (radius less than design standard of 300'). Also, the current vertical profile has restricted vertical sight distance.

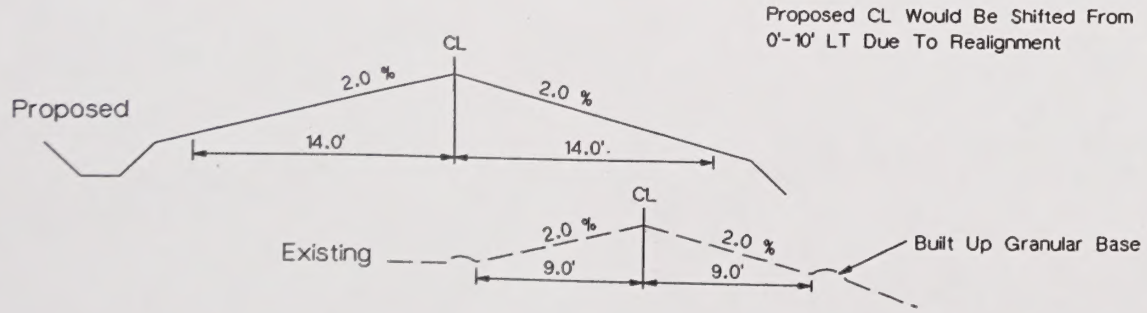
To correct the deficiencies from mile marker 7.0 to 7.6 the horizontal radii would be increased and the vertical profile would be flattened to meet design standards.

Mile Marker 7.5 To 7.6


CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
9.0'
9.0'
Built Up Granular Base

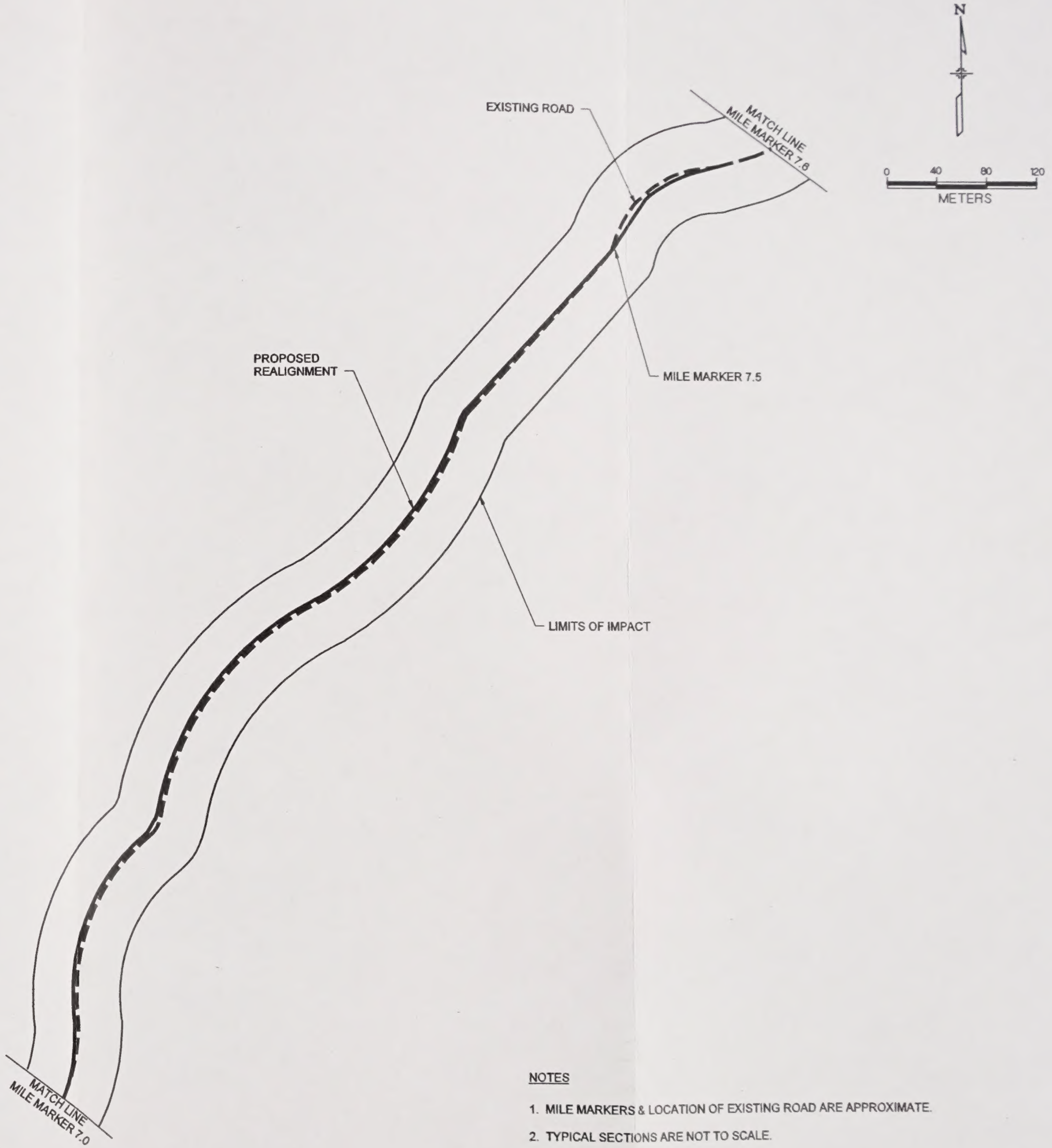
Proposed CL Would Be Shifted From 0'-12' RT Due To Realignment

Mile Marker 7.0 To 7.5


CL
2.0 %
2.0 %
Proposed
14.0'
14.0'.
CL
2.0 %
2.0 %
Existing
9.0'
9.0'
Built Up Granular Base

Proposed CL Would Be Shifted From 0'-10' LT Due To Realignment

TYPICAL SECTIONS - REALIGNMENT AREA #4

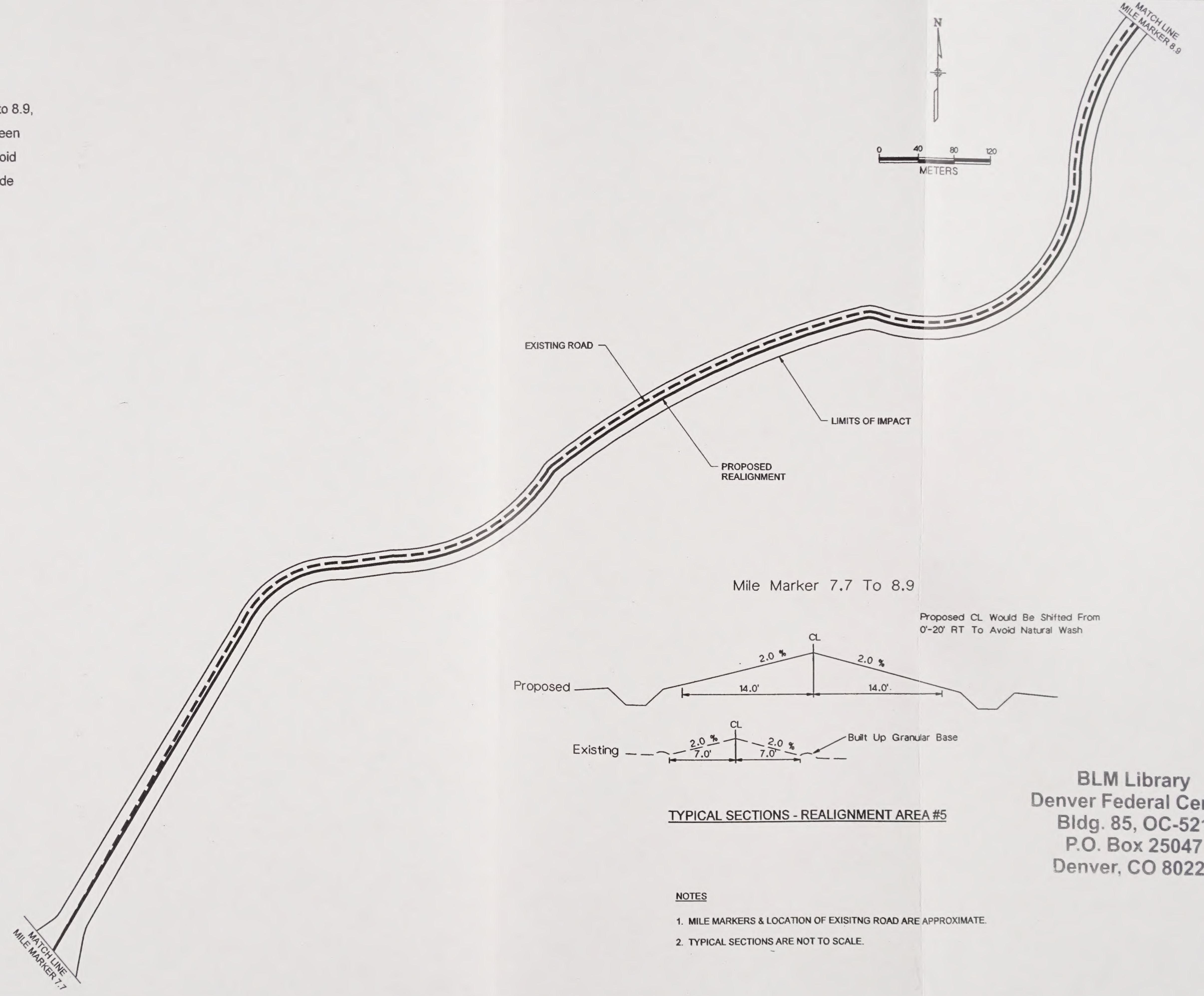

N
0
40
80
120
METERS
EXISTING ROAD
MATCH LINE
MILE MARKER 7.6
PROPOSED REALIGNMENT
MILE MARKER 7.5
LIMITS OF IMPACT
MATCH LINE
MILE MARKER 7.0

NOTES

1. MILE MARKERS & LOCATION OF EXISTING ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #5

Reason For Realignment:
Due to road widening, from mile marker 7.7 to 8.9, the current centerline of the alignment has been shifted approximately 0'-20' to the right to avoid the natural wash that is present on the left side of the road.


MATCH LINE
MILE MARKER 8.9
N
0
40
80
120
METERS
EXISTING ROAD
LIMITS OF IMPACT
PROPOSED REALIGNMENT
MATCH LINE
MILE MARKER 7.7
Mile Marker 7.7 To 8.9
Proposed CL Would Be Shifted From 0'-20' RT To Avoid Natural Wash
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
Existing
2.0 %
7.0'
2.0 %
7.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #5

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

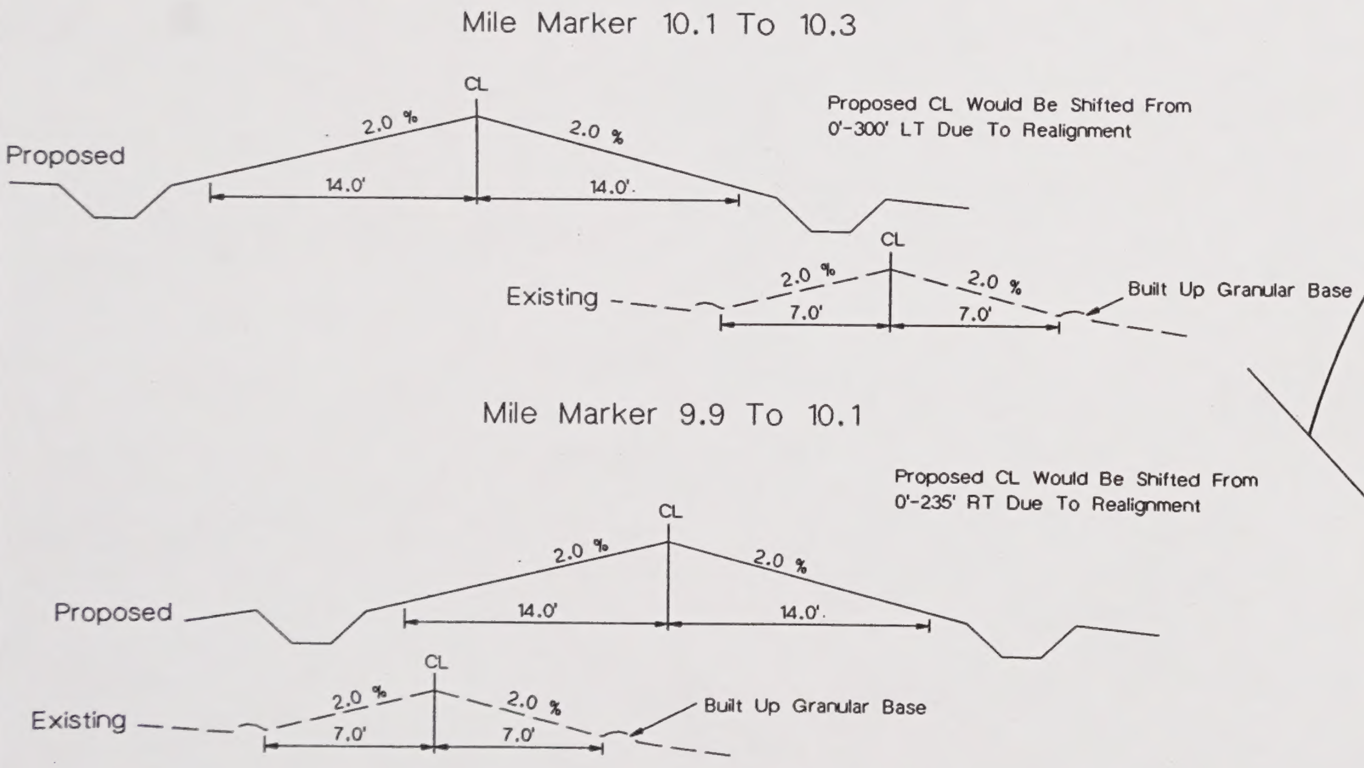
BLM Library
Denver Federal Center
Bldg. 85, OC-521
P.O. Box 25047
Denver, CO 80225

Realignment Area #6

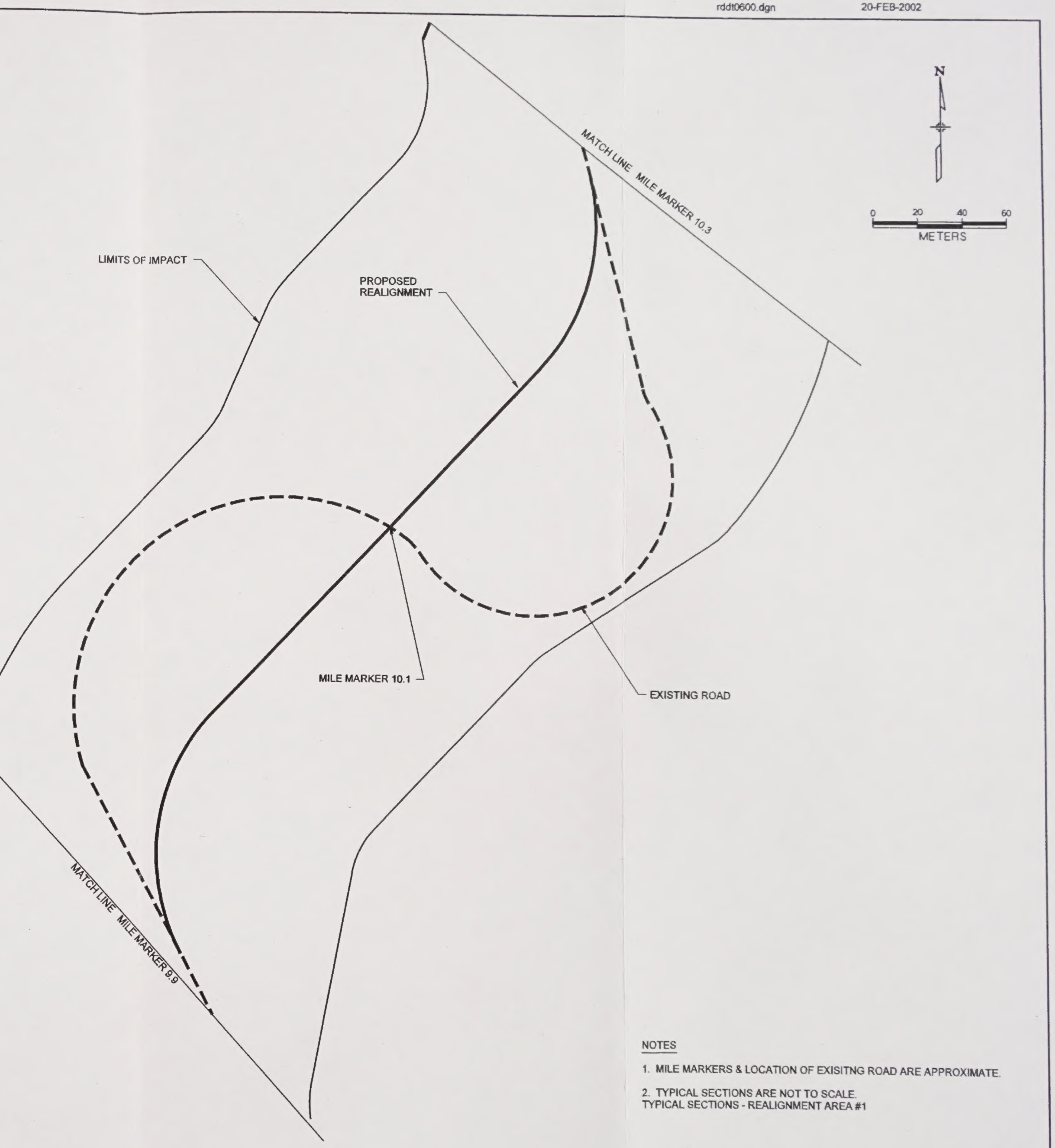
Reason For Realignment:

From mile marker 9.9 to 10.3 the current alignment has substandard horizontal curves (radii less than the design standard of 300') with restricted horiontal sight distance. Also, the current vertical profile contains grades of approximately 12% with restricted vertical sight distance.

To correct the deficiencies of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area.


Mile Marker 10.1 To 10.3
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-300' LT Due To Realignment
CL
Existing
2.0 %
2.0 %
7.0'
7.0'
Built Up Granular Base
Mile Marker 9.9 To 10.1
Proposed CL Would Be Shifted From 0'-235' RT Due To Realignment
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
Existing
2.0 %
2.0 %
7.0'
7.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #6


N
0
20
40
60
METERS
MATCH LINE MILE MARKER 10.3
LIMITS OF IMPACT
PROPOSED REALIGNMENT
MILE MARKER 10.1
EXISTING ROAD
MATCH LINE MILE MARKER 9.9

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.
TYPICAL SECTIONS - REALIGNMENT AREA #1

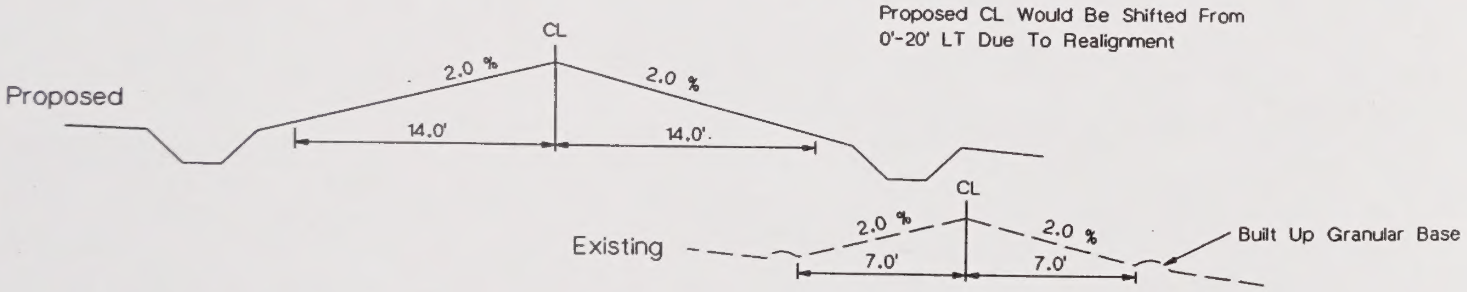
Realignment Area #7

Reason For Realignment:

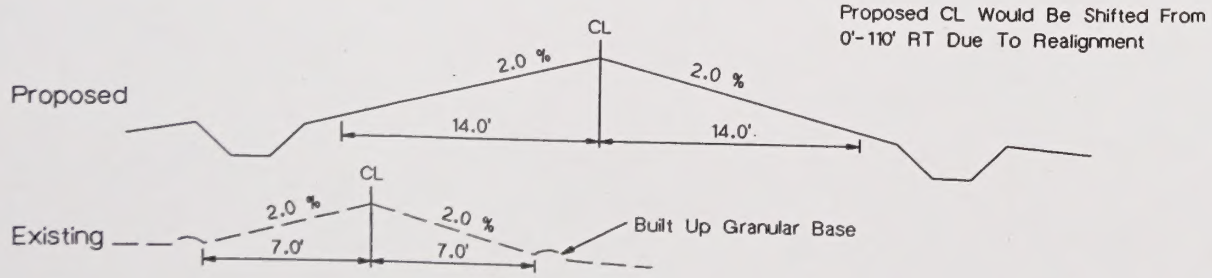
From mile marker 10.4 to 10.7 the current alignment has substandard horizontal curves (radii less than the design standard of 300'). Also, the current vertical profile contains grades of approximately 10%.

To correct the deficiencies of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area.

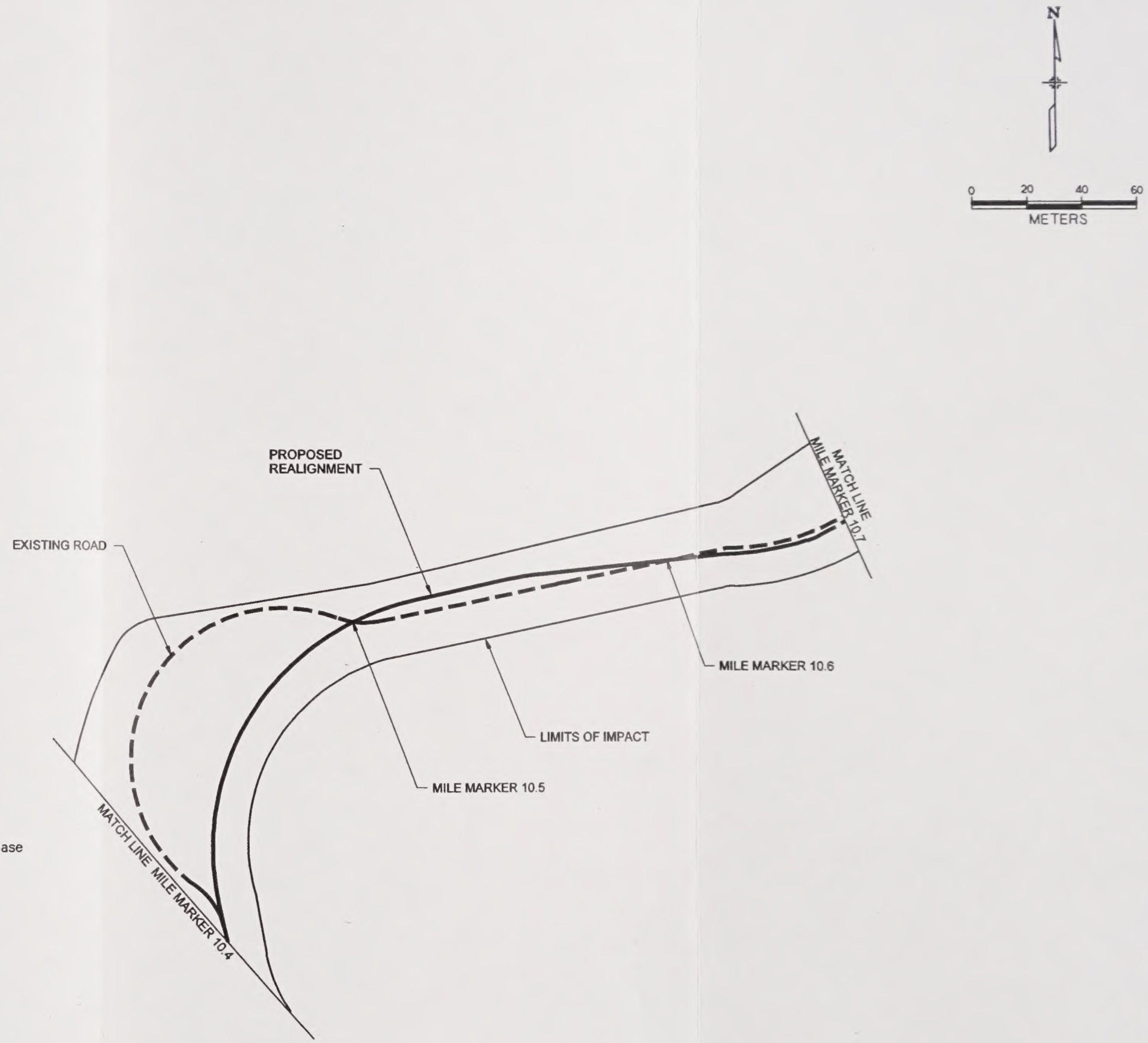
Mile Marker 10.5 To 10.6


Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-20' LT Due To Realignment
Existing
CL
2.0 %
2.0 %
7.0'
7.0'
Built Up Granular Base

Mile Marker 10.4 To 10.5


Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-110' RT Due To Realignment
Existing
CL
2.0 %
2.0 %
7.0'
7.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #7


N
0
20
40
60
METERS
PROPOSED REALIGNMENT
EXISTING ROAD
MATCH LINE MILE MARKER 10.7
MILE MARKER 10.6
LIMITS OF IMPACT
MILE MARKER 10.5
MATCH LINE MILE MARKER 10.4

NOTES

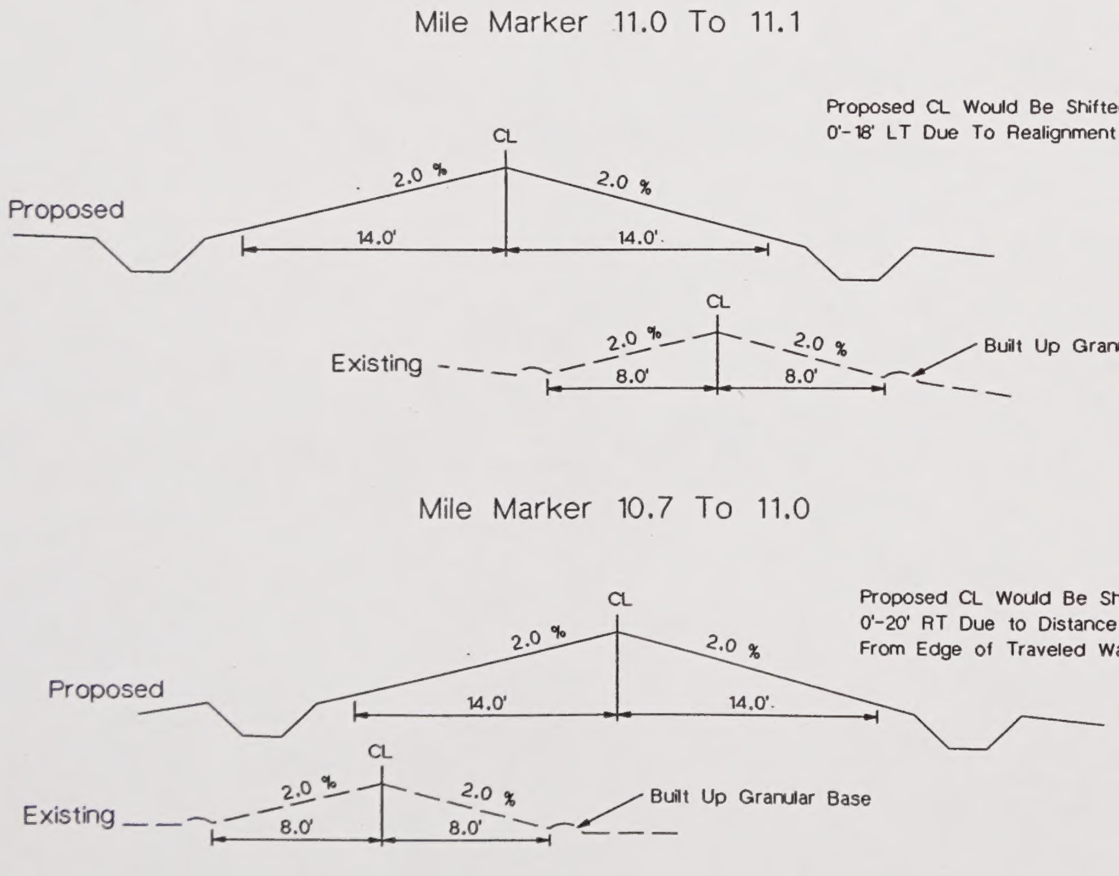
1. MILE MARKERS & LOCATION OF EXISTING ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #8

Reason For Realignment:

From mile marker 10.7 to 11.0 the tower located on the left side of the road is within the clear zone of the current road.

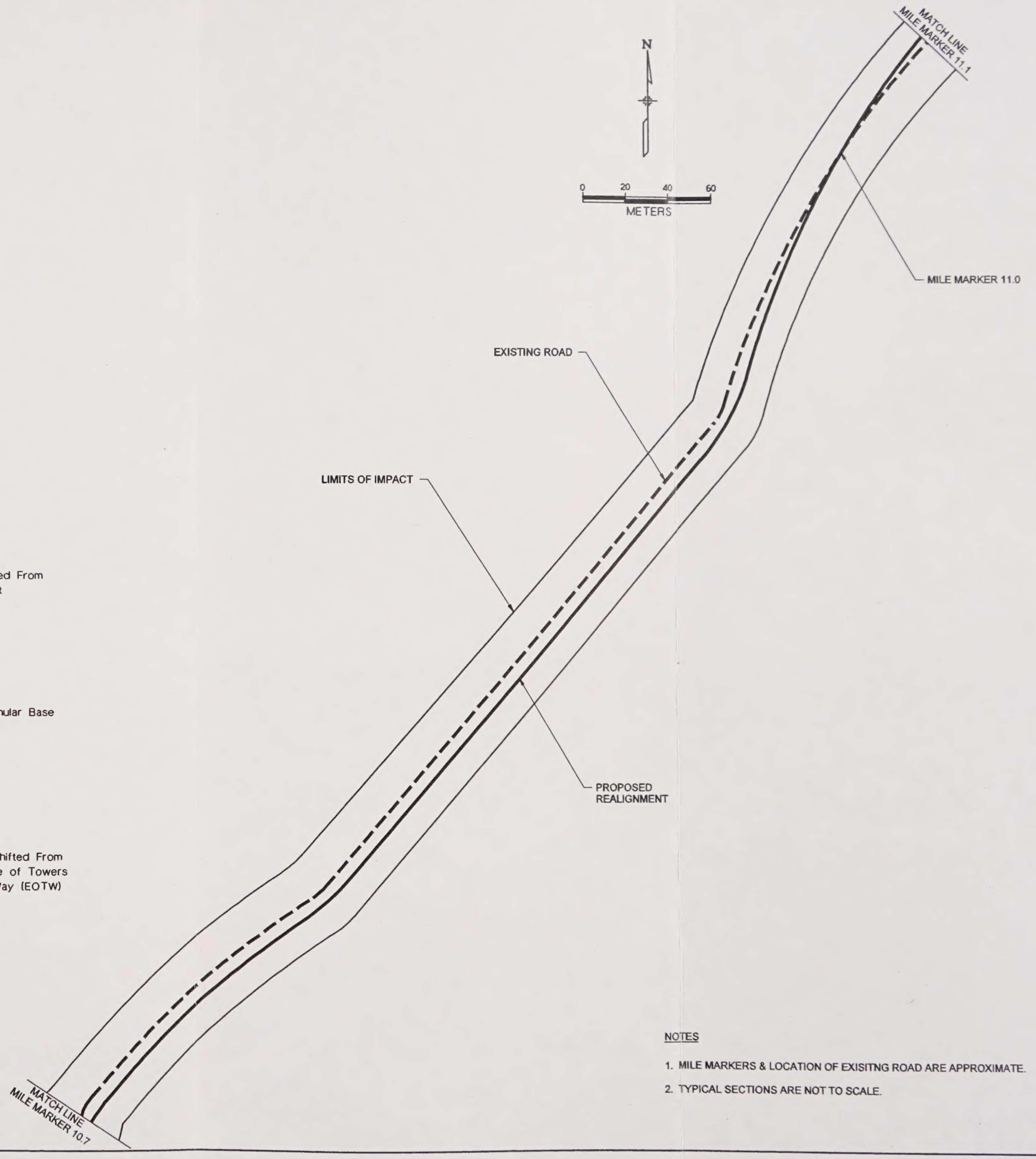
To correct the dificiencies of this portion of the alignment, the horizontal alignment would be shifted from 0'-20' to the right to ensure the towers would be outside of the clear zone.


Mile Marker 11.0 To 11.1
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base
Mile Marker 10.7 To 11.0
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base

Proposed CL Would Be Shifted From 0'-18' LT Due To Realignment

Proposed CL Would Be Shifted From 0'-20' RT Due to Distance of Towers From Edge of Traveled Way (EOTW)

TYPICAL SECTIONS - REALIGNMENT AREA #8


N
0
20
40
60
METERS
MATCH LINE
MILE MARKER 11.1
MILE MARKER 11.0
EXISTING ROAD
LIMITS OF IMPACT
PROPOSED REALIGNMENT
MATCH LINE
MILE MARKER 10.7

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #9

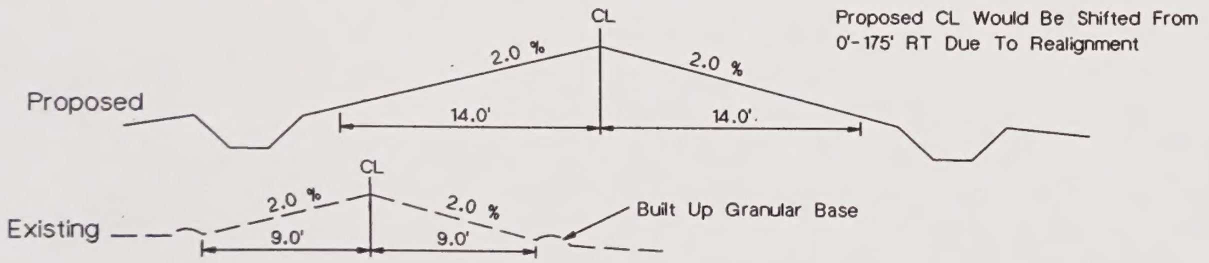
Reason For Realignment:

From mile marker 11.1 to 11.5 the current alignment has substandard horizontal curves (radii less than the design standard of 300)'.

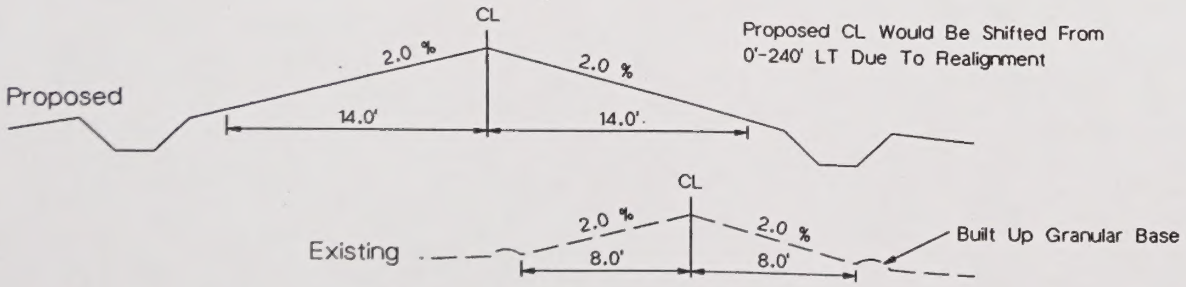
Also, the current vertical profile contains grades of approximately 10% to 12%.

To correct the deficiencies of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area

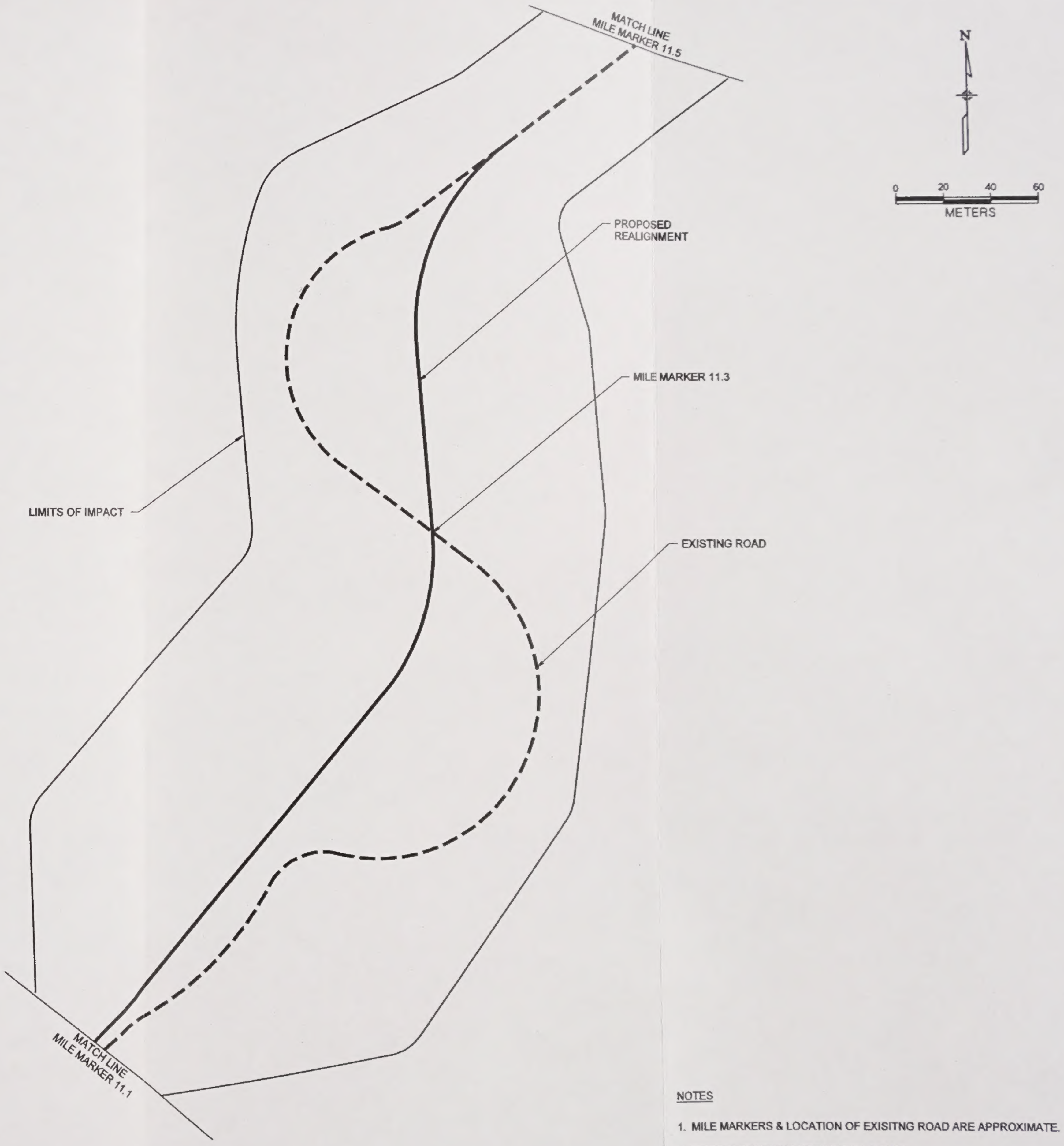
Mile Marker 11.3 To 11.5


CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-175' RT Due To Realignment
CL
2.0 %
2.0 %
Existing
9.0'
9.0'
Built Up Granular Base

Mile Marker 11.1 To 11.3


CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-240' LT Due To Realignment
CL
2.0 %
2.0 %
Existing
8.0'
8.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #9


MATCH LINE
MILE MARKER 11.5
N
0
20
40
60
METERS
PROPOSED REALIGNMENT
MILE MARKER 11.3
LIMITS OF IMPACT
EXISTING ROAD
MATCH LINE
MILE MARKER 11.1

NOTES

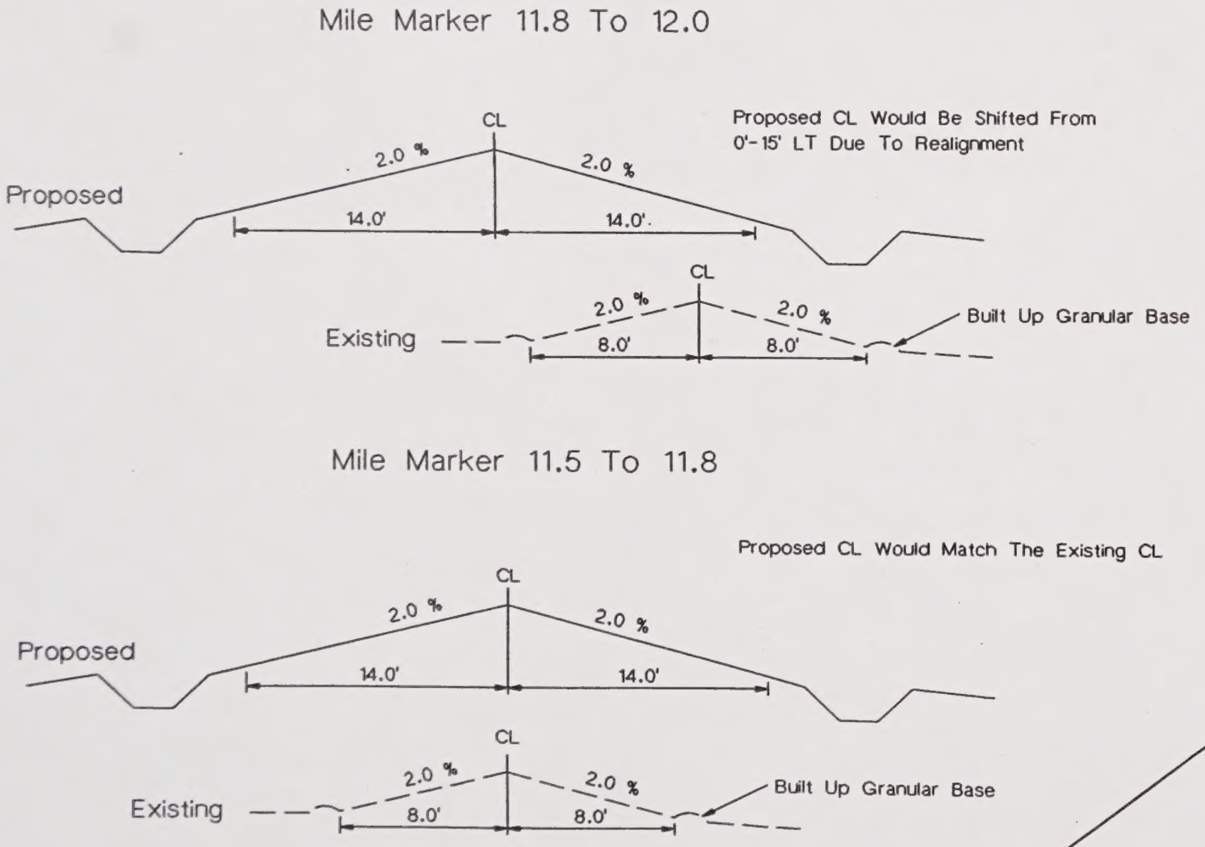
1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #10

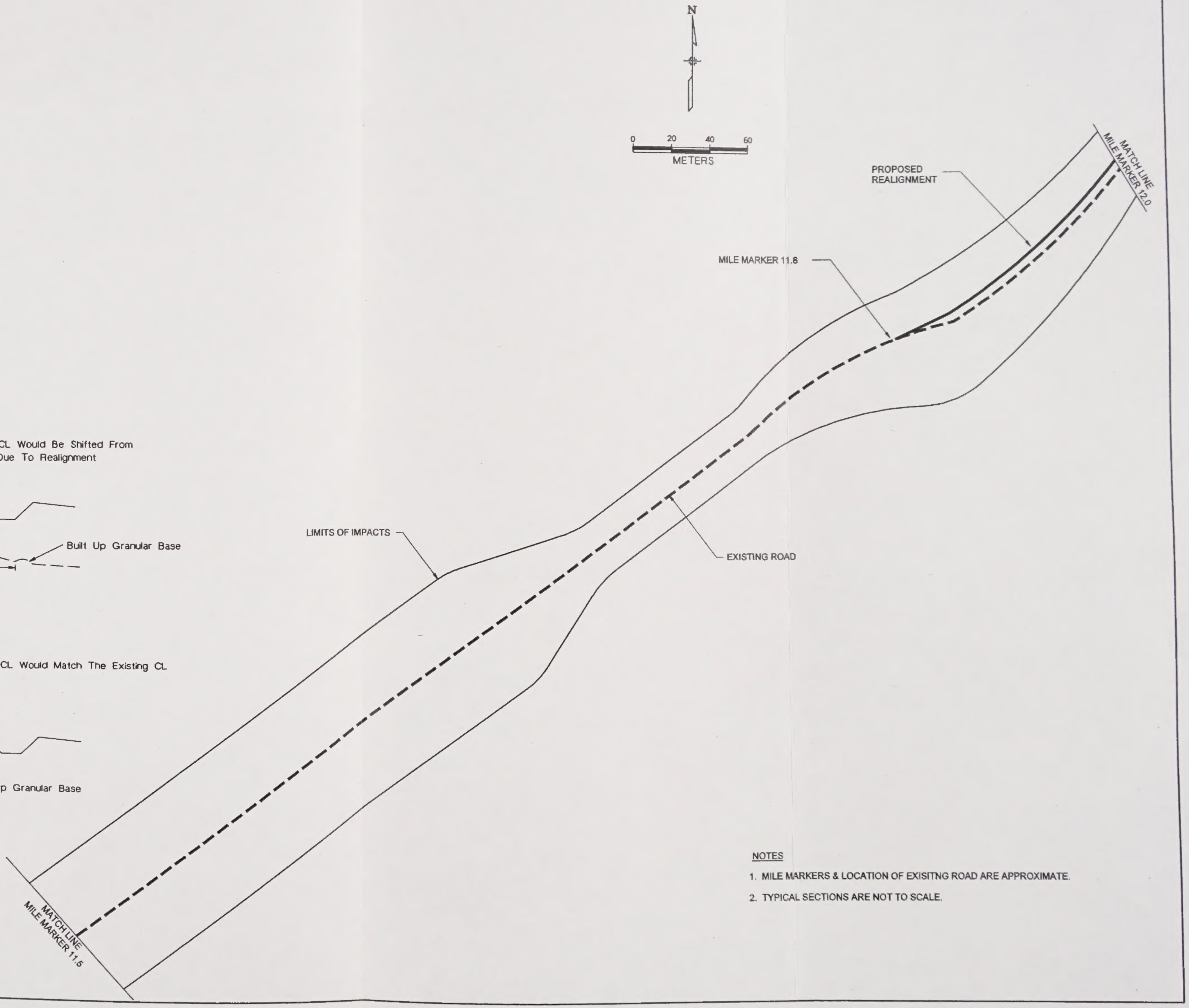
Reason For Realignment:

From mile marker 11.5 to 12.0 the towers located on the right side of the road are within the clear zone of the current road. Also, the current vertical profile contains grades of approximately 12%.

To correct the dificiencies of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area.


Mile Marker 11.8 To 12.0
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Proposed CL Would Be Shifted From 0'-15' LT Due To Realignment
Existing
CL
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base
Mile Marker 11.5 To 11.8
Proposed CL Would Match The Existing CL
Proposed
CL
2.0 %
2.0 %
14.0'
14.0'
Existing
CL
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #10


N
0
20
40
60
METERS
PROPOSED REALIGNMENT
MATCH LINE MILE MARKER 12.0
MILE MARKER 11.8
LIMITS OF IMPACTS
EXISTING ROAD
MATCH LINE MILE MARKER 11.5

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

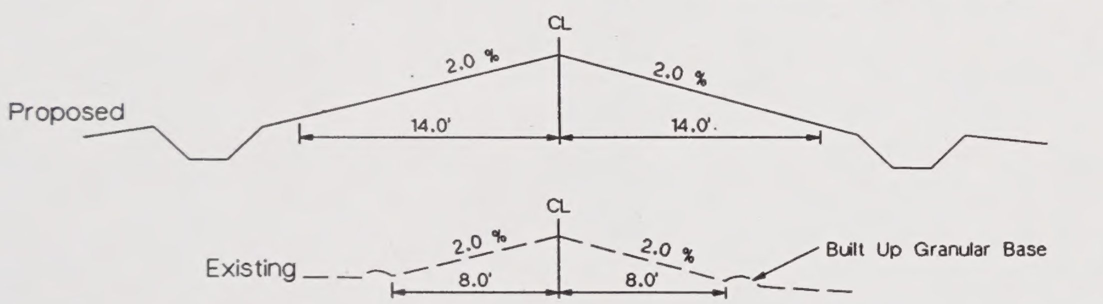
Realignment Area #11

Reason For Realignment:

From mile marker 12.2 to 12.7 the towers located on the left side of the road are within the clear zone of the current road. Also, the current vertical profile rises at approximately 12%.

To correct the dificiencies of this portion of the alignment, the horizontal alignment would be shifted from 0'-15' to the right to ensure the towers would be outside the clear zone. The vertical profile would be flattened to meet design standards

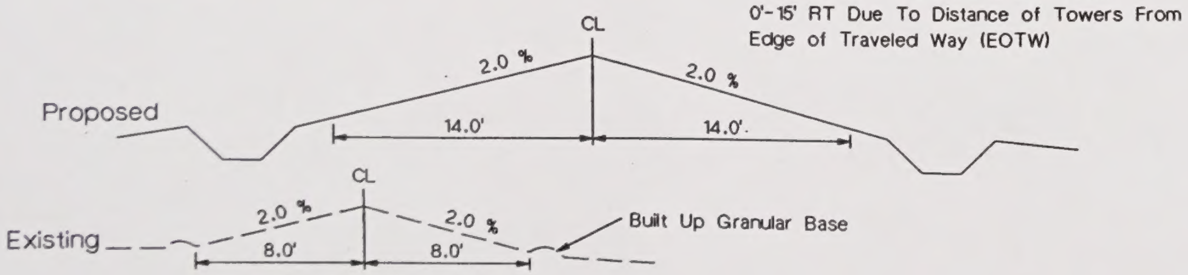
Mile Marker 12.4 To 12.7



Proposed CL Would Match Existing CL

CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
8.0'
8.0'
Built Up Granular Base

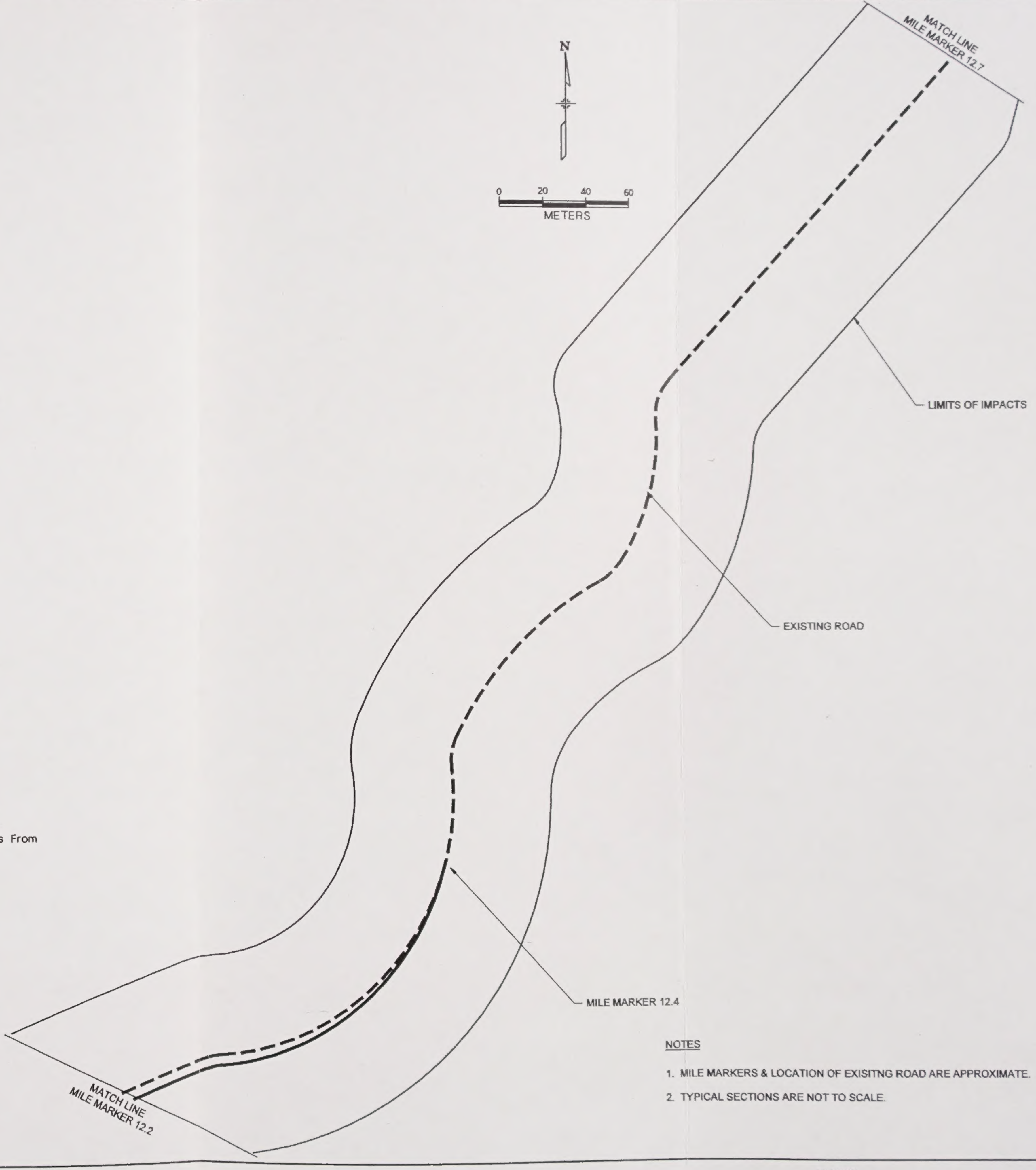
Mile Marker 12.2 To 12.4



Proposed CL Would Be Shifted From 0'-15' RT Due To Distance of Towers From Edge of Traveled Way (EOTW)

CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
8.0'
8.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #10



MATCH LINE
MILE MARKER 12.7
N
0 20 40 60
METERS
LIMITS OF IMPACTS
EXISTING ROAD
MILE MARKER 12.4
MATCH LINE
MILE MARKER 12.2

NOTES

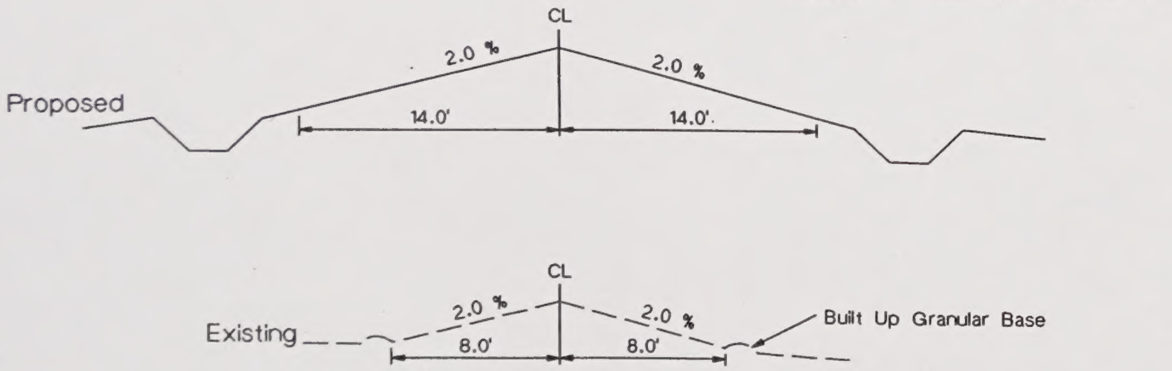
1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Realignment Area #12

Reason For Realignment:

From mile marker 13.0 to 13.3 the current vertical profile is characterized by steep grades.

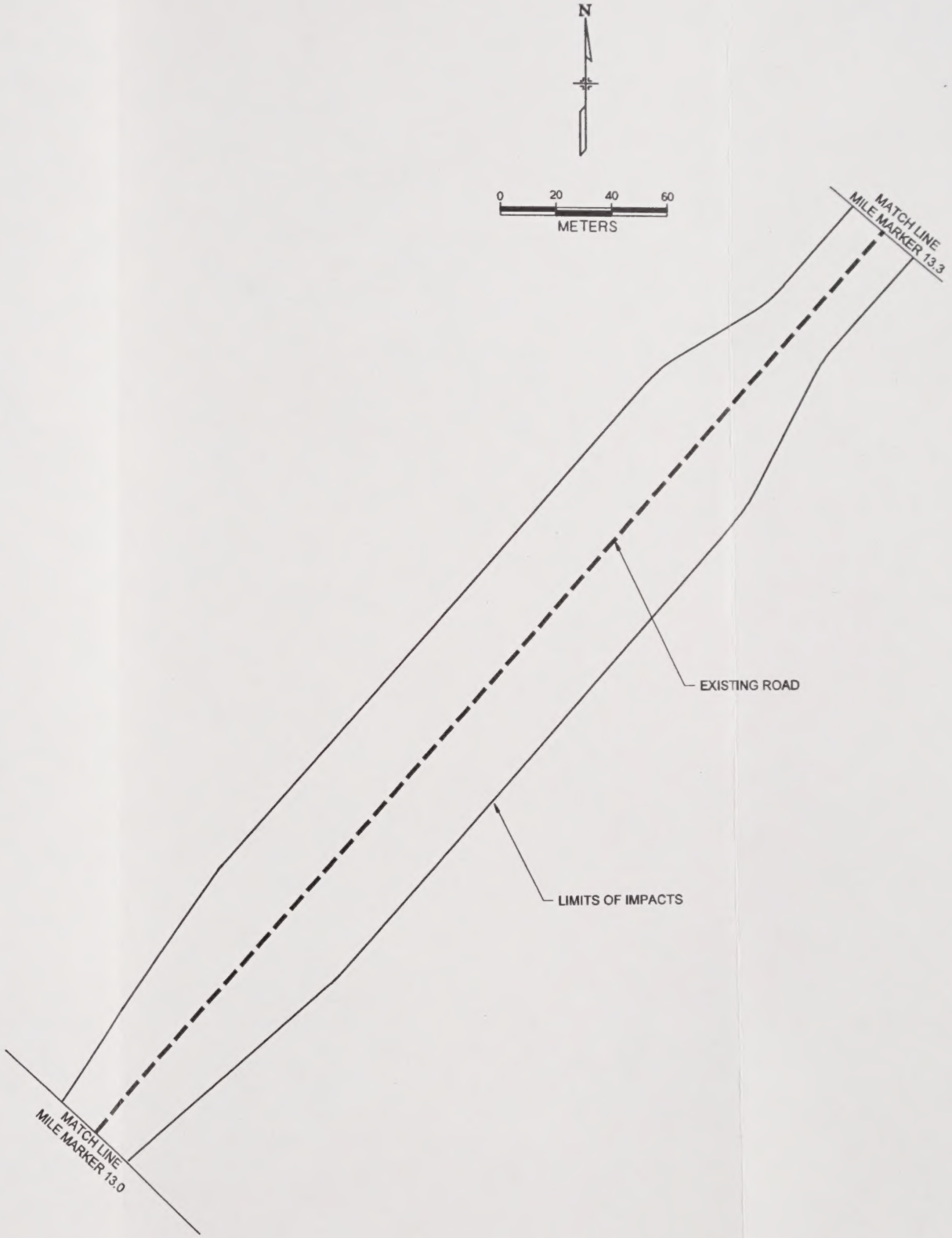
To correct this deficiency of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area.



Mile Marker 13.0 To 13.3

Proposed CL Would Match Existing CL
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
8.0'
8.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #10



N
0
20
40
60
METERS
MATCH LINE
MILE MARKER 13.3
EXISTING ROAD
LIMITS OF IMPACTS
MATCH LINE
MILE MARKER 13.0

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

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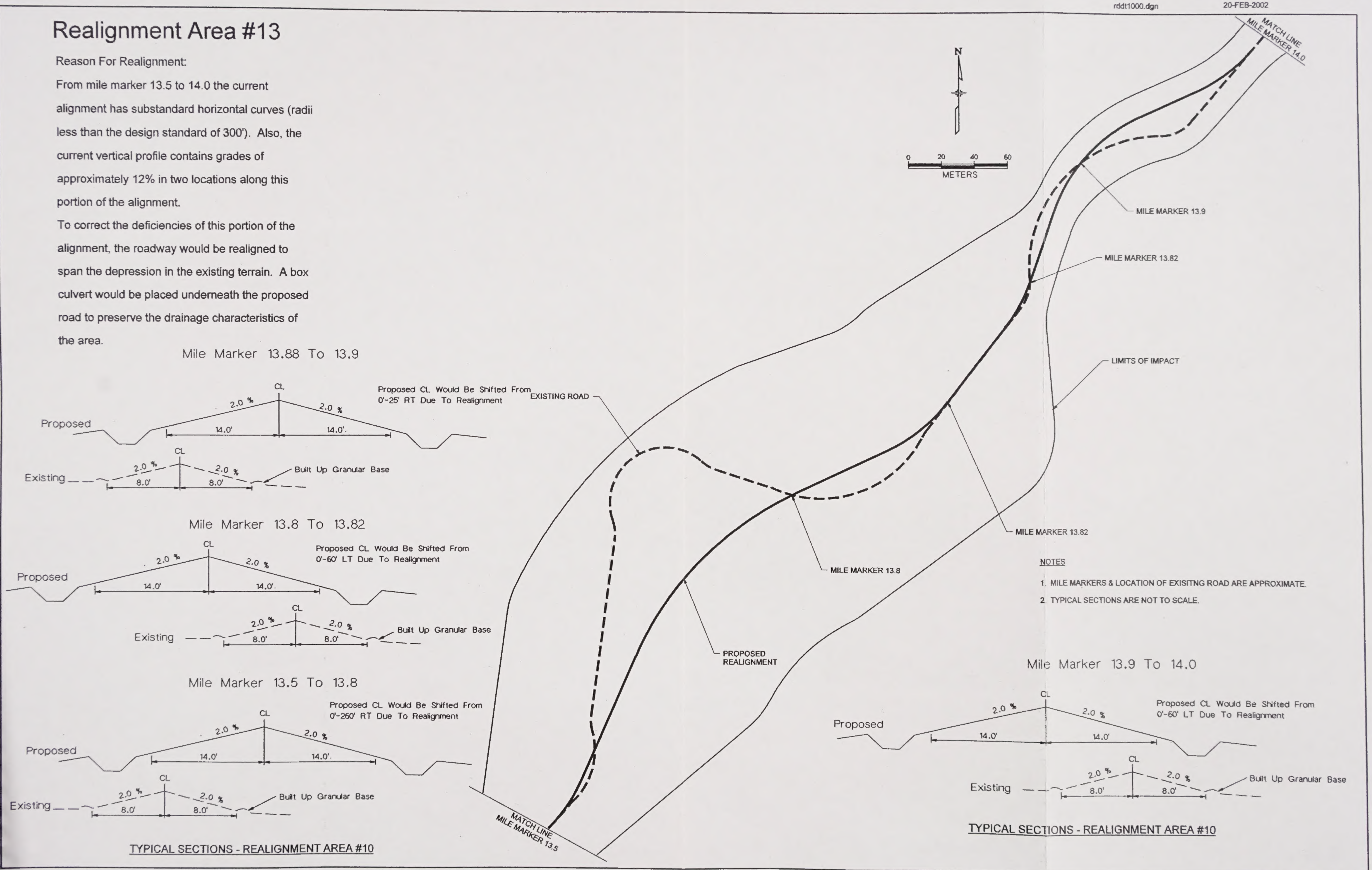
Realignment Area #13

Reason For Realignment:

From mile marker 13.5 to 14.0 the current alignment has substandard horizontal curves (radii less than the design standard of 300'). Also, the current vertical profile contains grades of approximately 12% in two locations along this portion of the alignment.

To correct the deficiencies of this portion of the alignment, the roadway would be realigned to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area.


Mile Marker 13.88 To 13.9
CL
2.0 %
2.0 %
Proposed CL Would Be Shifted From 0'-25' RT Due To Realignment
Proposed
14.0'
14.0'
CL
Existing
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base
Mile Marker 13.8 To 13.82
CL
2.0 %
2.0 %
Proposed CL Would Be Shifted From 0'-60' LT Due To Realignment
Proposed
14.0'
14.0'
CL
Existing
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base
Mile Marker 13.5 To 13.8
CL
2.0 %
2.0 %
Proposed CL Would Be Shifted From 0'-260' RT Due To Realignment
Proposed
14.0'
14.0'
CL
Existing
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base
N
0 20 40 60
METERS
MATCH LINE
MILE MARKER 14.0
MILE MARKER 13.9
MILE MARKER 13.82
LIMITS OF IMPACT
EXISTING ROAD
MILE MARKER 13.82
MILE MARKER 13.8
PROPOSED REALIGNMENT
MATCH LINE
MILE MARKER 13.5
Mile Marker 13.9 To 14.0
CL
2.0 %
2.0 %
Proposed CL Would Be Shifted From 0'-60' LT Due To Realignment
Proposed
14.0'
14.0'
CL
Existing
2.0 %
2.0 %
8.0'
8.0'
Built Up Granular Base

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

TYPICAL SECTIONS - REALIGNMENT AREA #10

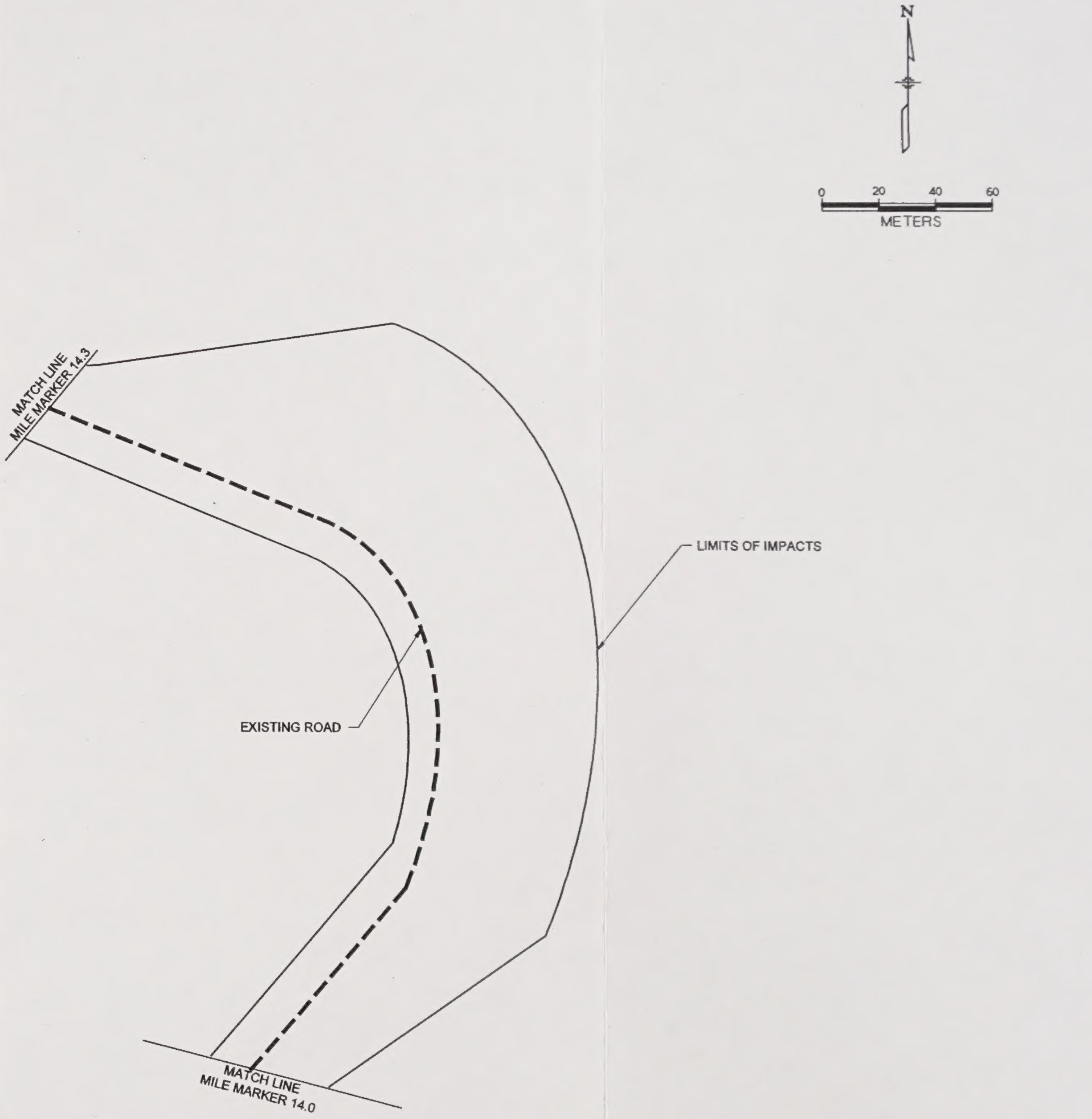
TYPICAL SECTIONS - REALIGNMENT AREA #10

11:19:50

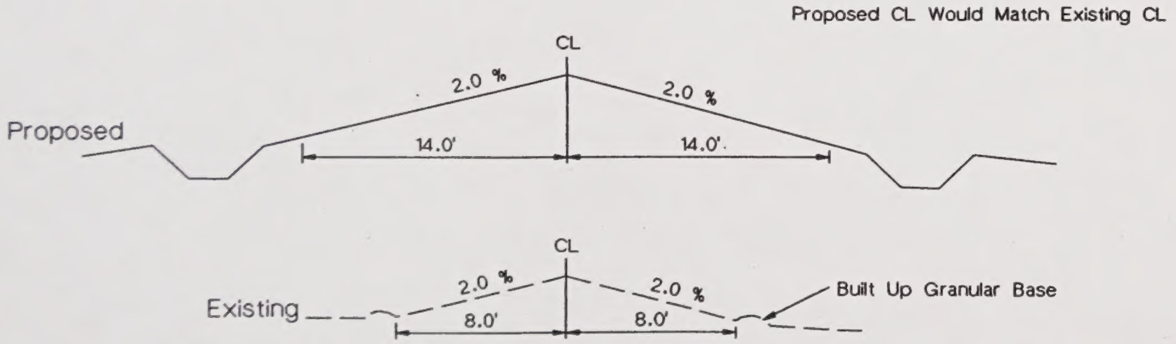
Realignment Area #14

Reason For Realignment:

From mile marker 14.0 to 14.3 the current vertical profile contains grades of approximately 12%. To correct this deficiency of the alignment, the roadway would be realinged to span the depression in the existing terrain. A box culvert would be placed underneath the proposed road to preserve the drainage characteristics of the area


N
0
20
40
60
METERS
MATCH LINE
MILE MARKER 14.3
LIMITS OF IMPACTS
EXISTING ROAD
MATCH LINE
MILE MARKER 14.0

Mile Marker 14.0 To 14.3


Proposed CL Would Match Existing CL
CL
2.0 %
2.0 %
Proposed
14.0'
14.0'
CL
2.0 %
2.0 %
Existing
8.0'
8.0'
Built Up Granular Base

TYPICAL SECTIONS - REALIGNMENT AREA #10

NOTES

1. MILE MARKERS & LOCATION OF EXISITNG ROAD ARE APPROXIMATE.
2. TYPICAL SECTIONS ARE NOT TO SCALE.

Appendix D

Ephemeral Stream Crossings

Ephemeral Stream Crossings

The Proposed Action would not affect wetlands or riparian zones present at springs because these resources do not occur at the proposed sites of project features. Locations of springs in relation to project feature sites were discussed in the EIS in *Section 4.4, Ground Water Resources*. The Proposed Action would affect a number of named and unnamed ephemeral washes. Named ephemeral washes that would be affected by the Proposed Action include Halfway Wash, Toquop Wash, South Fork Toquop Wash, and Sam's Camp Wash.

Jurisdictional delineations of waters of the United States were reviewed by Grady McNure of the USACE during a site visit/consultation on November 14, 2002. Table 1presents a summary of the waters of the United States within the Proposed Action and an estimate of impacts for the Proposed Action. Figures 1 through 3 present the approximate relative location of the larger washes within the Proposed Action. Because of the scale of the map and the small size of most of the ephemeral washes, many of the washes cannot be depicted on the figure.

The proposed access road would cross approximately 38 ephemeral washes, including Halfway Wash, that either intersect or parallel the proposed roadway. Construction in the bed or banks of the ephemeral washes would potentially cause minor, temporary increases in erosion, hydrologic changes, or vegetation removal that would reduce the ecological and functional values of the ephemeral wash. Waters of the United States affected by the roadway improvements are designated R-# in Table 1. As indicated in Table 1, the area affected at each of the 38 crossings of the waters of the United States is less than 0.5 acre.

Two small ephemeral washes are located within or immediately adjacent to the footprint of the proposed plant site. These washes are approximately 8 feet wide and flow into Toquop Wash. As shown in Table 1, the area of the waters of the United States affected by the proposed plant would total approximately 0.3 acre.

The proposed water pipeline (western alignment) would affect ten ephemeral washes, including Toquop Wash, South Fork Toquop Wash, and Sam's Camp Wash. The proposed water pipeline would be located within and parallel to the streambed of the Toquop Wash within the Toquop Gap. The proposed pipeline would parallel the Toquop Wash for an estimated 2,000 feet. The pipeline alignment within Toquop Gap will be refined during the final engineering design phase to specifically minimize impacts to areas of riparian vegetation within the Gap. Impacts to waters of the United States associated with installation of the water pipeline would be temporary impacts, because the ground surface would be returned to pre-existing contours following completion of construction activities.

Floodplains are not expected to be affected by the Proposed Action because the area is mapped as "Zone D," which is defined as "areas of undetermined, but possible, flood hazards."

Based on a preliminary estimate of impacts to waters of the United States, the Nationwide Permit Program (NWP) probably cannot be utilized for the Proposed Action because the cumulative permanent impacts associated with the roadway improvements and the plant site would exceed the acreage loss of waters of the United States authorized by the individual NWPs for these activities (NWP 14—Linear Transportation Projects and NWP 39—Residential, Commercial and Institutional Developments).

The Nevada Letter of Permission (LOP) procedures would be the applicable permit instrument for the Proposed Action. The Sacramento District of the USACE issues LOPs to authorize certain fill activities pursuant to Section 404 of the Clean Water Act that have overall minor impact to the aquatic ecosystem. Activities that qualify for processing through LOP procedures are fill activities that do not qualify for existing nationwide permit(s) or other general permit. These fill activities have minor impacts; and, therefore, do not warrant more detailed processing. The LOP is used only for those projects where the applicant performs a thorough pre-application coordination among the regulatory and resource agencies.

As requested by the USACE, a summary of the Proposed Action impacts evaluated according to the Section 404(b)1 Guidelines is presented in *Appendix F, Section 404(b) Guidelines for the Toquop Energy Facility*, of the EIS.

With the implementation of best management practices (BMPs) during construction, and other measures described in *Appendix B, Standard Construction and Operation Procedures*, and summarized below, impacts on waters of the United States, including ephemeral washes, would be minimized.

Mitigation

The pipeline alignment was sited to minimize impacts to waters of the U.S. as well as desert tortoise critical habitat. The width of the fill within the access road will be limited to the minimum necessary for the crossing of waters of the United States. The access road will not cause more than minimal changes to the hydraulic flow characteristics of the stream, and each crossing will be culverted to allow normal flow during rain events.

Following construction, the proposed pipeline right-of-way will be restored to pre-construction contours. The pipeline alignment within Toquop Gap will be refined during the final engineering design phase to specifically minimize impacts to areas of riparian vegetation within the Gap

Appendix B, Standard Construction and Operation Procedures, of the *Proposed Toquop Land Disposal Amendment to the Caliente MFP and FEIS for the Toquop Energy Project*, contains measures to prevent or minimize the impacts to waters of the United States.

Construction activities will be conducted in accordance with a Stormwater Pollution Prevention Plan to be prepared for the project. Measures to minimize sedimentation and erosion will include best management practices such as check dams, silt fencing, and straw bales. The sediment and erosion control measures will be maintained throughout the course of construction. The sediment and erosion control measures will be located to protect downstream areas from construction impacts during periods of water flow in the project area.

TABLE 1
Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Road	Parallels Road	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impact	Approximate Impact (acres)	Comments
Waters of United States Present in Immediate Vicinity of Proposed Access Road Between I-15 and Plant Site									
R-1	10	N	Y	36°46.754N	114°13.742W	0.3-0.8	Permanent	0.013	Wash located on west side of road, narrows from 10 feet to 4 feet in width. Approximately 40 feet from road at MP 0.3. At MP 0.9 wash is at edge of road and is 4 feet wide. If impacted on west side area of impact estimated to be 150 feet by 4 feet.
R-2	6	Y	Y	—	—	1.0	Permanent	0.007	Wash arises from roadside drainage, then flows east. Area of impact is approximately 50 feet in length and 6 feet width.
R-3	12	Y	N	36°49.288N	114°17.844W	3.2	Permanent	0.01	Existing single 36-inch culvert. Wash approximately 12 feet wide and potential impact may extend approximately 50 feet on western side of road. In Realignment Area #1.
R-4	4	Y	N	—	—	4.4	Permanent	0.06	Located within Realignment Area #3. Roadway cross section estimated to be 700 feet wide.
R-5	6	Y	N	36°50.220N	114°18.062W	4.5	Permanent	0.006	Existing single 12-inch culvert. Wash approximately 6 feet wide.
R-6	3	Y	N	36°50.311N	114°18.332W	4.7	Permanent	0.003	Existing single 24-inch culvert. Wash approximately 3 feet wide.
R-7	10	Y	N	36°51.445N	114°18.480W	6.0	Permanent	0.01	Single 36-inch culvert. Wash varies from 5 to 10 feet in width.
R-8	2	Y	N	36°51.486N	114°18.445W	6.5	Permanent	0.002	Single 24-inch culvert. Two small 1-foot washes converge.
R-9	10 to 20	N	Y	36°51.486N	114°18.481W	6.5-6.6	None	0	Wash located west of and near base of roadway and parallels road—road could be widened to the east to avoid impacts.

TABLE 1
Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Road	Parallels Road	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impact	Approximate Impact (acres)	Comments
R-10	3	Y	N	36°52.407N	114°17.411W	7.8	Permanent	0.003	Existing culvert, wooden culvert marker 7-7/10. Flows west to wash. In Realignment Area #5.
R-11	20	N	Y	36°52.689N	114°17.072W	8.2	None	0	Wash parallels road on west side. Wash width varies from 15 to 20 feet wide; approximately 10 feet from road. In Realignment Area #5.
R-12	25	Y	N	36°52.840N	114°16.674W	8.7	Permanent	0.03	Existing three 36-inch culverts, wash approximately 25 feet wide. In Realignment Area #5.
R-13	15	Y	N	36°52.905N	114°16.657W	8.8	Permanent	0.02	Two 36-inch culverts, wash approximately 15 feet wide. In Realignment Area #5.
R-14	4	Y	N	36°53.097N	114°16.285W	9.2	Permanent	0.004	Existing 24-inch culvert, wooden culvert marker 9-1/10. Wash approximately 4 feet wide.
R-15	6	Y	N	36°53.459N	114°16.058W	9.7	Permanent	0.006	Existing double 36-inch culverts, wooden culvert marker 9-5/10. Wash width between 4 and 6 feet.
R-16	6	Y	N	36°53.499N	114°16.033W	9.7	Permanent	0.006	Existing single culvert, wash approximately 6 feet wide.
R-17	10	Y	N	36°53.660N	114°16.029W	10.0	Permanent	0.01	Existing single 36-inch culvert, wooden culvert marker 9-7/10. Wash width approximately 10 feet. In Realignment Area #6.
R-18	6	Y	N	36°53.856N	114°15.932W	10.4	Permanent	0.006	No culvert—wash width varies between 1 and 6 feet.
R-19	6	Y	N	36°53.893N	114°15.932W	10.4	Permanent	0.006	No existing culvert. In Realignment Area #7.
R-20	6	Y	N	36°54.040N	114°15.975W	10.6	Permanent	0.006	No existing culvert.

TABLE 1
Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Road	Parallels Road	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impact	Approximate Impact (acres)	Comments
R-21	8	Y	N	36°54.109N	114°15.789W	10.8	Permanent	0.008	No existing culvert. In Realignment Area #8.
R-22	4	Y	N	36°54.272N	114°15.590W	11.1	Permanent	0.004	No existing culvert. In Realignment Area #8 and 9.
R-23	15	Y	N	36°54.403N	114°15.466W	11.3	Permanent	0.02	No existing culvert. In Realignment Area #9.
R-24	6	Y	N	36°54.444N	114°15.400W	11.4	Permanent	0.006	No culvert, wash consists of two small channels. Incised, gravel channels. In Realignment Area #9.
R-25	4	Y	N	36°54.568N	114°15.382W	11.6	Permanent	0.004	No existing culvert. In Realignment Area #10.
R-26	2	Y	N	36°54.626N	114°15.381W	11.7	Permanent	0.002	No existing culvert. In Realignment Area #10.
R-27	2	N	N	36°54.662N	114°15.381W	11.8	Permanent	0.002	Wash only on east side of road, but does not parallel road. In Realignment Area #10.
R-28	4	Y	N	36°54.742N	114°15.025W	11.9	Permanent	0.004	No existing culvert. In Realignment Area #10.
R-29	2	N	N	36°54.872N	114°15. W	12.1	Permanent	0.002	Wash only on east side of road, but does not parallel road.
R-30	2	N	N	36°54.958N	114°15. W	12.2	Permanent	0.002	Wash only on east side of road, but does not parallel road.
R-31	6	Y	N	36°54.998N	114°15.708W	12.3	Permanent	0.006	Wash on west side, then drains into road. In Realignment Area #11.
R-32	20	Y	N	36°55.012N	114°14.652W	12.4	Permanent	0.04	Two washes next to each other, both are 20 feet wide. In Realignment Area #11.
R-33	10	Y	N	36°55.094N	114°14. W	12.5	Permanent	0.01	No existing culvert; gravel substrate. In Realignment Area #11.

TABLE 1
Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Road	Parallels Road	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impact	Approximate Impact (acres)	Comments
R-34	1	Y	N	36°55.471N	114°14.156W	13.1	Permanent	0.001	No existing culvert. In Realignment Area #12.
R-35	1	N	Y	36°55.730N	114°13.851W	13.5	Permanent	0.001	Wash only on east side of road, but does not parallel road. In Realignment Area #12.
R-36	3	Y	N	36°55.937N	114°13.707W	13.8	Permanent	0.003	Parallels road, then crosses road. No existing culvert. Same wash as Wash A on Plant Site.
R-37	2	Y	N	36°56.027N	114°13.522W	14.1	Permanent	0.002	No existing culvert, near southern edge of plant site. In Realignment Area #13. Same wash as Wash B on Plant Site.
R-38	6	Y	N	36°56.287N	114°13.673W		Permanent	0.006	No existing culvert.
							Total Impact:	**0.331**	

Notes:

- Waters of United States are numbered sequentially from south to north.
- Approximate latitude and longitude of Waters of United States were estimated using a hand-held global positioning unit, and have not been differentially corrected. GPS unit inoperable at some locations.
- Delineations of Waters of United States were approved during a site visit with Grady McNure/USACE on November 14, 2002.
- Approximate roadway Milepost increases from south to north along existing track road and is based on auto odometer. Odometer set to 0.0 at end of existing pavement.
- Unless otherwise noted, calculation of approximate area of impact based on proposed typical roadway cross-section width of 45 feet.
- Realignment Areas drawings dated November 1, 2002.

TABLE 1

Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Plant Site	Parallels Plant Site	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impact	Approximate Impact (acres)	Comments
Waters of United States Present in Immediate Vicinity of Proposed Plant Site									
Wash A	8	Y	N	—	—	NA	Permanent	0	Same wash as Wash 36 along road alignment.
Wash B	8	Y	N	36°56.207N	114°13.854W	NA	Permanent	0.33	Length of impact within wash estimated to be 1,800 feet. Same wash as Wash 37 along road alignment.
							Total Impact:	**0.33**	

Notes:

- Waters of United States are numbered sequentially from south to north.
- Approximate latitude and longitude of Waters of United States were estimated using a hand-held global positioning unit, and have not been differentially corrected. GPS unit inoperable at some locations.
- Delineations of Waters of United States were approved during a site visit with Grady McNure/USACE on November 14, 2002.
- Calculation of approximate area of impact based on Plan View of Plant Site, Map 2-4 from EIS.
- Realignment Areas drawings dated November 1, 2002.

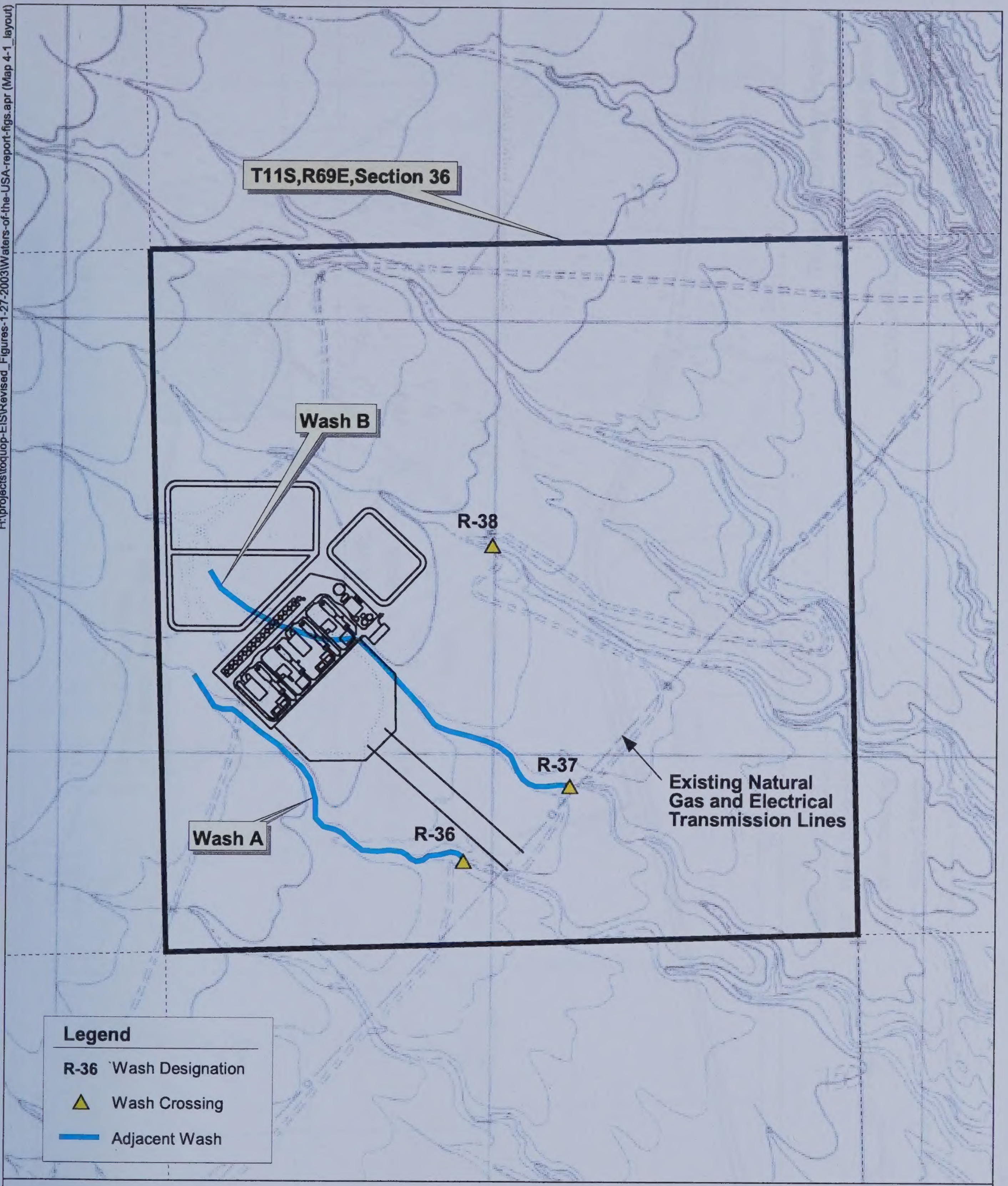
TABLE 1
Summary of Waters of United States Observed Within the Proposed Action and Alternative 3

Wash Designation	Wash Width (feet)	Intersects Pipeline	Parallels Pipeline	Latitude	Longitude	Approx. Milepost	Permanent or Temporary Impacts	Approximate Impact (acres)	Comments
Waters of United States Present In Immediate Vicinity of Proposed Water Line									
P-1	5	Y	N	—	—	NA	Temporary	0.007	
P-2	10	Y	N	36°59.918N	114°16.159W	NA	Temporary	0.014	South Fork Toquop Wash.
P-3	6	Y	N	36°59.902N	114°16.419W	NA	Temporary	0.008	
P-4	2	Y	N	37°00.148N	114°16.575W	NA	Temporary	0.003	
P-5	4	Y	N	37°00.174N	114°16.593W	NA	Temporary	0.006	First wash on east side of Toquop Gap.
P-6	25-50	Y	Y	—	—	NA	Temporary	2.750	Toquop Wash, within Toquop Gap. Pipeline alignment parallels and intersects wash throughout Gap. Estimated impact of approximately 2,000 linear feet within wash.
P-7	20	Y	N	37°03.905N	114°18.026W	NA	Temporary	0.028	First wash on west side of Toquop Gap. Point at survey stake 2327.
P-8	6	Y	N	37°04.069N	114°17.969W	NA	Temporary	0.008	Parallels pipeline for approximately 60 feet. At survey stake 2334.
P-9	1	N	Y	37°04.231N	114°17.911W	NA	Temporary	0.001	Near survey stake 2340.
P-10	3	Y	N	37°04.384N	114°17.853W	NA	Temporary	0.004	Sam's Camp Wash. Near survey stake 2346.
							Total Impact:	**2.829**	

Notes:

- Waters of United States are numbered sequentially from south to north.
- Approximate latitude and longitude of Waters of United States were estimated using a hand-held global positioning unit, and have not been differentially corrected. GPS unit inoperable at some locations.
- Delineations of Waters of United States were not specifically reviewed during a site visit with Grady McNure/USACE on November 14, 2002. However, Mr. McNure did review limits of jurisdiction within Toquop Gap.
- Calculation of approximate area of impact based on construction right-of-way width of 60 feet.

H:\projects\toquop-EIS\Revised_Figures-1-27-2003\Waters-of-the-USA-report-figs.apr (Map 4-1_layout)


T11S,R69E,Section 36
Wash B
R-38
R-37
Existing Natural Gas and Electrical Transmission Lines
Wash A
R-36
Legend
R-36 `Wash Designation
Wash Crossing
Adjacent Wash
N
0
500
1000 Feet

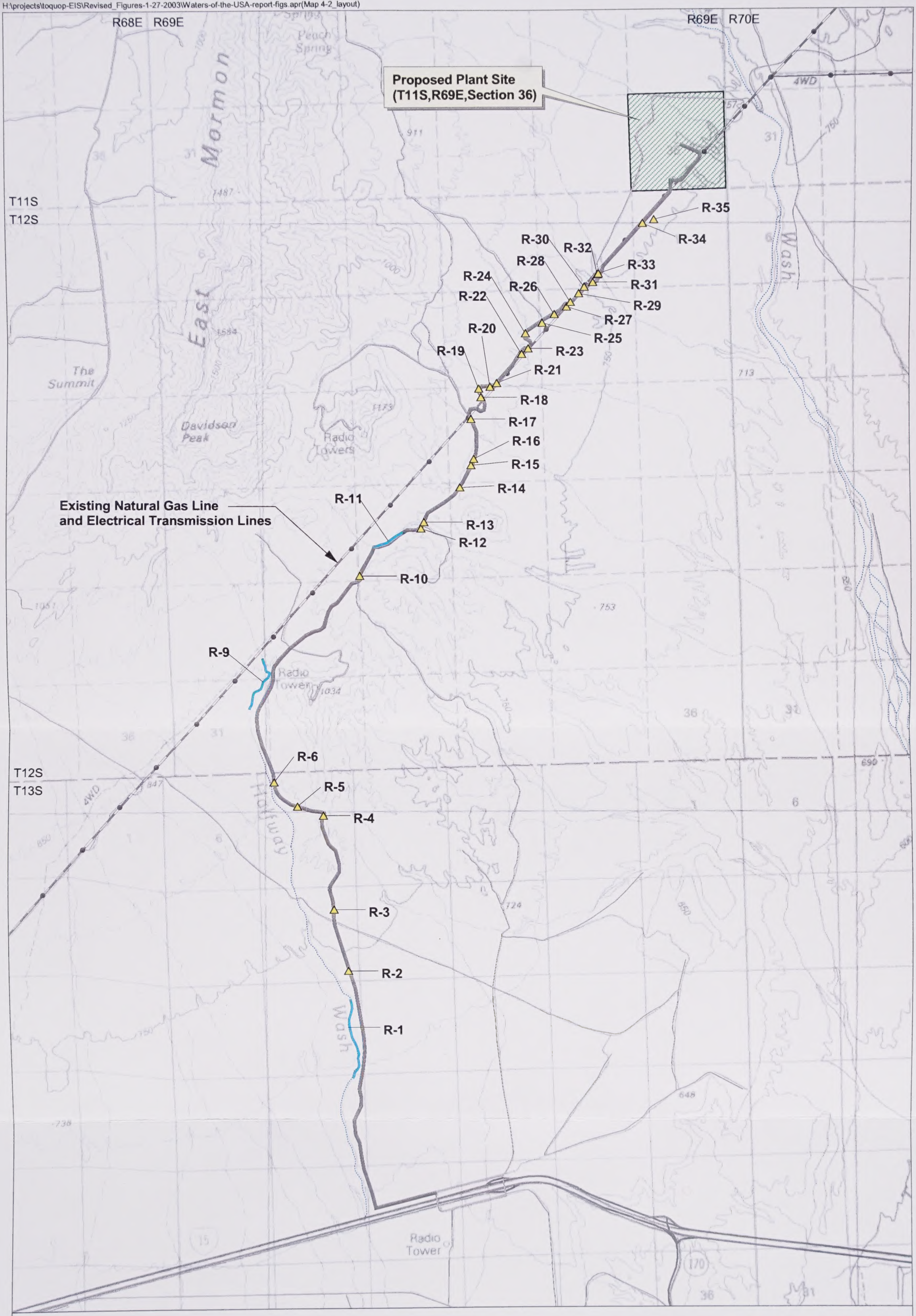
Source:
Maptech 1:24,000 Scanned Topo Maps

CH2MHILL

Toquop Energy Project
Approximate Locations of Waters of the United States (Proposed Plant Site)

Figure 1

H:\projects\toquop-EIS\Revised_Figures-1-27-2003\Waters-of-the-USA-report-figs.apr(Map 4-2_layout)


R68E R69E
R69E R70E
Proposed Plant Site
(T11S,R69E,Section 36)
T11S
T12S
T12S
T13S
Mormon
East
The Summit
Davidson Peak
Radio Towers
Radio Tower
Radio Tower
Peach Spring
Halfway
Wash
Wash
4WD
4WD
Existing Natural Gas Line
and Electrical Transmission Lines
R-1
R-2
R-3
R-4
R-5
R-6
R-9
R-10
R-11
R-12
R-13
R-14
R-15
R-16
R-17
R-18
R-19
R-20
R-21
R-22
R-23
R-24
R-25
R-26
R-27
R-28
R-29
R-30
R-31
R-32
R-33
R-34
R-35
15
170

N

0 2500 5000 7500 Feet

Source:
Maptech 1:100,000 Scanned Topo Maps

Legend

R-1 Wash Designation

▬ Access Road

△ Wash Crossing

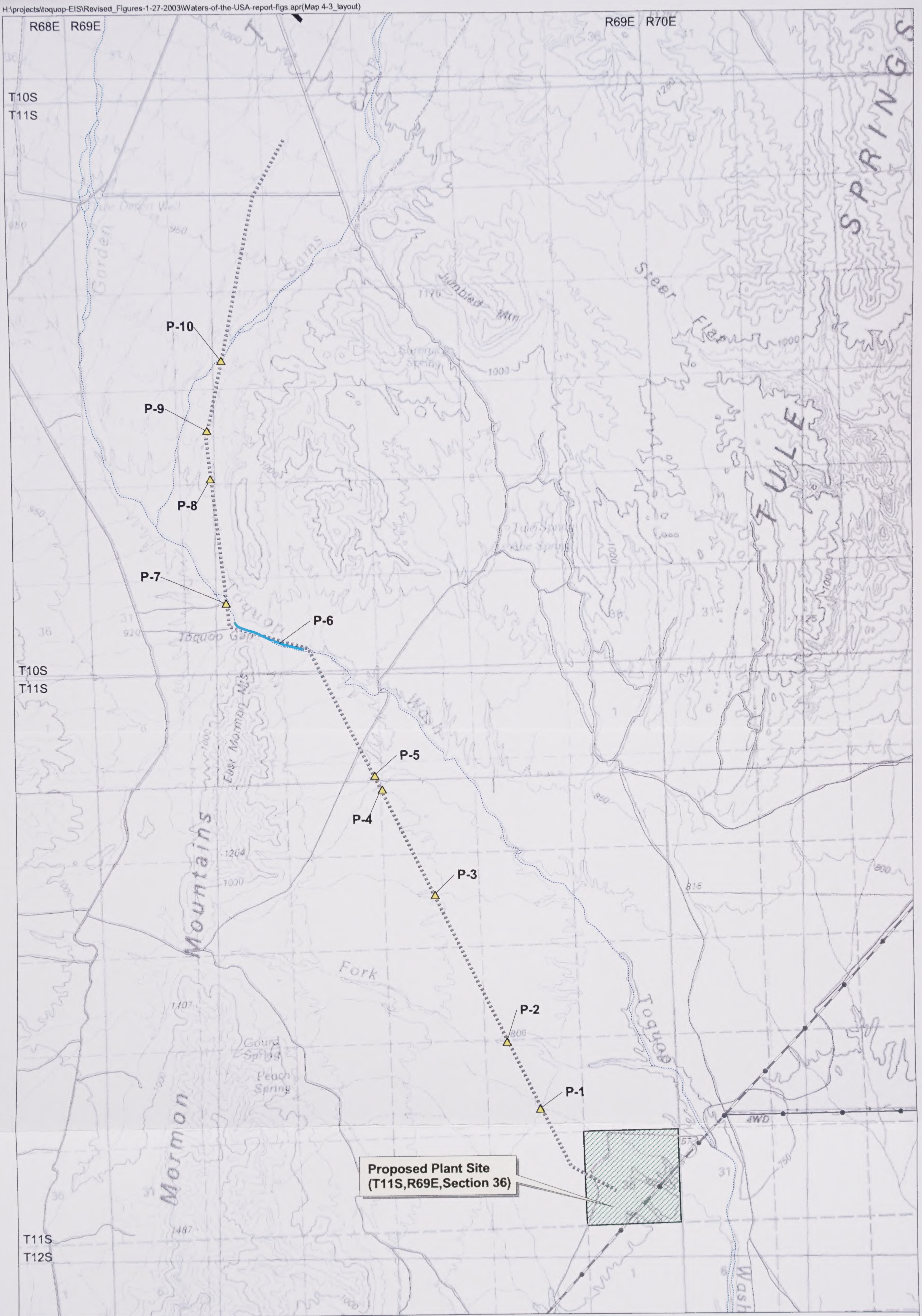
▬ Adjacent Wash

Toquop Energy Project
Approximate Locations of Waters of the United States
(Access Roadway Improvements)

Figure 2

CH2MHILL

H:\projects\toquop-EIS\Revised_Figures-1-27-2003\Waters-of-the-USA-report-figs.apr(Map 4-3_layout)


R68E R69E
R69E R70E
T10S
T11S
T10S
T11S
T11S
T12S
TULE SPRINGS
Steer Flat
Tumbled Mtn
Summit Spring
Tule Spring
Garden
Toquop Gap
Toquop Wash
East Mormon Mts
Mormon Mountains
Fork
Gourd Spring
Peach Spring
4WD
P-10
P-9
P-8
P-7
P-6
P-5
P-4
P-3
P-2
P-1
Proposed Plant Site
(T11S,R69E,Section 36)
N
0 2500 5000 7500 Feet
Legend
P-1 Wash Designation
Access Road
Wash Crossing
Adjacent Wash

Source:
Maptech 1:100,000 Scanned Topo Maps

Toquop Energy Project
Approximate Locations of Waters of the United States (Proposed Pipeline)

Figure 3

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Appendix E

Construction Spill Prevention and Containment Plan

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1 List of Potentially Hazardous Materials

1.0 Introduction

This Construction Spill Prevention and Containment Plan describes basic measures to minimize or prevent impacts from uncontrolled spills of harmful substances during construction of the Toquop Energy Project (project). This plan, appended to the Plan of Development for project construction, generally defines the current understanding of hazardous materials expected to be on site during construction, spill prevention and control measures, emergency response procedures, and inspection guidelines. Implementation of this plan should minimize potential impacts and protect environmentally sensitive areas. It is likely that the contractor chosen to conduct project development will provide a plan specifically applicable to the company's policies and procedures. A copy of the plan will be available on the construction site for at all times, and all contractors and subcontractors will be responsible for following the plan guidelines.

This plan should be amended upon occurrence of the following:

- Any changes in design or construction plans that result in a modification of stored materials on site
- An inspection reveals the plan's control measures are inadequate for existing conditions

Each time the plan is amended or updated, the date of the latest revision should be included on the cover page and revised sections should be distributed.

2.0 Project Description

The Toquop Energy Project is located in southern Nevada in areas managed by the Ely and Las Vegas Field Offices of the Bureau of Land Management (BLM). Project components to be constructed include the following:

- An access road from Interstate 115
- A natural gas fired power plant
- A water supply wellfield
- A water supply pipeline from the wellfield to the power plant

Designated construction area limits are defined in the Plan of Development.

3.0 Hazardous Materials Inventory, Handling, Storage, Spill Prevention and Control

This section provides information on the procedures for inventory, handling, storage and spill prevention of hazardous materials. The construction supervisor or his specific designee will be responsible for emergency response coordination. All project contractors and subcontractors will be required to complete appropriate spill prevention and response training prior to the start of construction.

3.1 Hazardous Materials Inventory

A list of potentially hazardous materials likely to be used during construction of the project is provided in Table 1. Petroleum products including gasoline, diesel fuel, and oils used for construction equipment would comprise the largest quantities of hazardous substances used during construction. Smaller quantities of other materials such as solvents or paint will also be managed on the construction site. Material Safety Data Sheets (MSDSs) for these materials will be filed on site in an easily accessible location.

Hazardous materials stored on site will be monitored on a periodic basis. Any additional substances stored onsite will be noted in Table 1 and the MSDS filed.

TABLE 1

List of Potentially Hazardous Materials

Material	Use
Diesel fuel	Diesel fuel used to power equipment, temporary pumps, and other engines.
Gasoline	Gasoline will be used to power equipment, temporary pumps, and other engines.
Lubricants (motor oil, grease)	Motor oil will be used for vehicle and equipment engines. Waste motor oil and other lubricants will be sent to licensed facilities for recycling.
Hydraulic fluid	Hydraulic fluid will be used for vehicle and equipment engines.
Paints	Paints will be used on above ground structures.
Acetylene	Acetylene will be used for welding operations.
Batteries (sulfuric acid)	Batteries for equipment and vehicles will contain sulfuric acid and will be sent to licensed facilities for recycling or disposal. Batteries will not be stored with fuel or in fuel storage areas.
Ethylene glycol	Ethylene glycol (antifreeze) will be used for vehicle and equipment engines.
Oxygen	Oxygen will be used during welding operations.
Propane	Propane will be used during welding operations.

3.2 Hazardous Materials Handling and Storage

The following materials handling and spill prevention measures will be implemented at the construction site:

- All used oil products will be stored in secured, covered containers in a designated area with secondary containment. Used oil will be transported offsite on a scheduled basis through a licensed transporter for proper disposal. Any spilled oil will be cleaned up immediately and all oil-containing materials will be stored and disposed of with the used oil products.
- All hazardous waste products (used oils, solvents, paints, etc.) will be stored in secure, covered, properly labeled containers in a separate, secured area and periodically transported offsite for proper disposal by a licensed transporter.
- All hazardous materials used during construction (petroleum products, solvents, etc.) will be stored in secure, covered containers in a separate, secured area. Containers will have appropriate labeling, and Material Safety Data Sheets (MSDSs) will be filed onsite and always available for review.
- Storage areas will be sited away from traffic to minimize accidental spills.
- Containers will be stored in such a manner to prevent corrosion that could result from contact between the drum and ground surface.
- Trash receptacles will be equipped with covers.

Additional specific potential pollution sources and measures taken to address these areas are:

- **Concrete Truck Wash Out.** If it is determined that a concrete truck wash-out area will be needed for construction activities, the location will be determined prior to the start of construction activities. A wash-out area is usually an impoundment where the water used to wash out the truck is contained until the residual concrete has hardened.
- **Equipment and Materials Storage Area.** Materials used on the construction site will be stored in areas designated for that purpose. Suitable measures will be taken in these areas to minimize the likelihood of a discharge.

3.3 Spill Prevention

The following spill prevention procedures for temporary fuel tanks will be implemented:

- All stationary tanks located on soil will be located inside a bermed perimeter dike or be inside an open tank capable of containing the maximum capacity of the tank in case of rupture. Dikes will have a maximum 2:1 side slopes with a 1-foot crest. The area inside the dike will be covered with an impermeable material to prevent soil contamination in the event of a spill.
- Stationary tanks located on concrete or steel foundations will be bermed with appropriate materials suitable for each application. These materials will allow for the

containment of the full capacity of the tank while minimizing contamination of the surrounding area.

- All temporary fuel tanks will have an adequate number of oil-sorbant cellulose socks or dry solvent absorber to contain minor spills.

3.4 Control and Mitigation of Spills

Appropriate spill response materials and equipment will be kept on site and readily available at all times. Spill mitigation will include the following measures:

- All fueling operations and vehicle maintenance will be performed at designated facilities.
- All hazardous materials used during construction will be stored in a designated, secured area.
- Spills of hazardous materials will be reported immediately to the site construction manager, who will notify local emergency response agencies.

3.4.1 Small, Easily Contained Spills

The following procedures will be followed for the cleanup of small (easily and quickly contained) spills.

- Upon detection of any spill, the first response will be to assure personal safety. The site manager will be contacted and informed of the nature of the spill. The area of the spill and the nature of the spilled material will be evaluated to determine if remedial actions could result in additional health hazards, in escalation of the spill, or in facility damage that may escalate the problem. If such conditions exist, a guard should be posted near the area and the site manager immediately notified.
- The source of the spill will be identified (if possible) and the flow of pollutants stopped in a safe manner.
- Pertinent facts and information about the spill will be recorded, including the following:
  - Type of pollutant
  - Location
  - Apparent source
  - Estimated volume
  - Time of discovery
- Absorbent material will be spread on the area to soak up as much of the liquid as possible.
- If immediate removal of the contaminated soil from the site is not practical, contaminated soil will be excavated and placed on an impermeable liner and securely covered. A small berm under the outer edges of the liner will be formed to prevent breakout or infiltration during rain or snowstorms. Contaminated soils will be removed

from the site for proper disposal as soon as practicable and a maximum of one week after excavation.

3.4.2 Medium-to-Large Spills

The following procedures will be followed for the cleanup of medium-to-large spills.

- Upon detection of any spill, the first response will be to assure personal safety. The site manager will be contacted immediately and informed of the nature of the spill. The area and nature of the spilled material will be evaluated to determine if remedial actions could result in additional health hazards, in escalation of the spill, or in facility damage that may escalate the problem. If such conditions exist, a guard should be posted near the area (if possible) and the site manager immediately notified.
- The source of the spill will be identified (if possible) and the flow of pollutants stopped in a safe manner.
- Pertinent facts and information about the spill will be recorded, including the following:
  - Type of pollutant
  - Location
  - Apparent source
  - Estimated volume
  - Time of discovery
- Appropriate equipment will be dispatched to the spill site and the spill will be deterred from additional discharge as necessary.
- Cleanup will commence when the lateral discharge has been contained and applicable notifications have been made.
- Free liquid should be bailed or pumped into 55-gallon drums or other steel tanks if available.
- When all liquid has been bailed, absorbent materials should be applied to the surface and transferred to 55-gallon drums.
- Any contaminated soils will be excavated and transferred to a temporary contaminant stock pile underlain with an impermeable liner. The stock pile will be covered securely and the edges will be bermed underneath the liner to provide a dam to prevent inflow of water or leakage of the liquid. Contaminated soils will be removed from the site for proper disposal as soon as practicable and a maximum of one week after the excavation.

4.0 Emergency Response Team Information

Table 2 provides contact information for the Emergency Response Team.

TABLE 2
Emergency Response Team Information

Title and Name	Phone Number
Construction Manager	
TBD	TBD
Construction Supervisors	
TBD	TBD
Construction Subcontractors	TBD
Environmental Compliance Manager, BLM Ely Field Office	(775) 289-1872
Dan Netcher	
BLM Hazardous Materials Coordinator for Nevada	(775) 861-6570
Bill Kelso	
Nevada Division of Environmental Protection	(775) 687-4670 ext-3013
Lincoln County Local Emergency Planning Committee	TBD

A report will be filed after all spills. Reports will include the following minimum information:

- The name, address, and telephone number of the person reporting the spill
- Date, time, and location of the spill
- Substance spilled and estimated quantity
- Any impact or potential impact (for example, stained banks, film or sheen on water) to water (that is, wetland, flowing stream, intermittent stream, ditch, or wash)
- Control and remediation measures taken
- Estimated quantity and disposition of recovered materials, if any
- Extent of injuries and medical attention required, if any

Appendix F

Permits and Approvals

Permits and Approvals

Table 1 presents a list of federal, state, county, and other permits and approvals that may be needed to implement the proposed action or other action alternatives of the Toquop Energy Project

TABLE 1
Federal, State, County, and Other Permits and Approvals that may be Needed to Implement the Proposed Action or Other Action Alternatives of the Toquop Energy Project

Federal Permits and Approvals
Bureau of Land Management NEPA Record of Decision for Proposed Action
Bureau of Land Management Rights-of-Way and Temporary Use Permits for water pipelines, transmission lines, access roads, gas pipeline, and other ancillary approvals
Bureau of Land Management Amendment of the Caliente Management Framework Plan and Planning Document
U.S. Fish and Wildlife Service, Endangered Species Act Section 7 Consultation and Biological Opinion
U.S. Army Corps of Engineers, Section 404/Section 10 Permit
Acid Rain (Title IV CAA) Permit
U.S. Environmental Protection Agency, Region IX, Title V (CAA) Operating Permit
U.S. Environmental Protection Agency, Section 402 National Pollutant Discharge Elimination System Notification for Stormwater Management during Construction
U.S. Environmental Protection Agency, Section 402 National Pollutant Discharge Elimination System Notification for Stormwater Management during Operation
State of Nevada Permits and Approvals
Nevada State Historic Preservation Office (SHPO), Section 106 review and concurrence, per National Historic Preservation Act for BLM lands, per protocol between BLM and Nevada SHPO
Nevada Division of Wildlife, Region 3 Project Review: Wildlife and Habitat Consultation for disturbance on BLM land
Nevada Division of Wildlife—Authorization for take or removal of state-protected reptiles
Temporary Discharge Permit—Nevada Division of Environmental Protection, Bureau of Water Pollution Control
Nevada Public Utility Commission Utility Environmental Protection Act
Nevada Division of Forestry, Native Cacti and Yucca Commercial Salvaging and Transportation Permit
Nevada Division of Forestry, Permit for the Take of Critically Endangered Flora
Nevada Division of Environmental Protection, Section 401 Water Quality Certification
Water Right Permit-State Engineer—Nevada Department of Water Resources
Prevention of Significant Deterioration Program Major Source Permit—Nevada Department of Environmental Quality
Dust Control Permit— Nevada Department of Environmental Quality

TABLE 1
Federal, State, County, and Other Permits and Approvals that may be Needed to Implement the Proposed Action or Other Action Alternatives of the Toquop Energy Project

Federal Permits and Approvals
Ground Water Discharge Permit— Nevada Division of Environmental Protection, Bureau of Water Pollution Control
Industrial Artificial Pond Permit—Nevada Division of Wildlife
Nevada Department of Transportation Encroachment Permit
Lincoln County and Clark County Permits and Approvals
Lincoln County Master Plan Amendment, Zone Change, and Special Use Permit
Grading permits for power plant, water pipeline, wellfield, and access road on BLM land
Clark County Multiple Species Habitat Conservation Plan
Southeast Lincoln County Multiple Species Habitat Conservation Plan
Other Permits and Approvals
Kern River Gas Transmission Company Encroachment and Approval
Approval for interconnection with the Navajo-McCullough Electric Transmission Line
Approval for interconnection with the Red Butte-Harry Allen Electric Transmission Line

Appendix G

Measures to Protect Desert Tortoises and Their Habitat

Measures for Protecting Desert Tortoises and Their Habitat

The following protective measures will be implemented during project construction, operation, and maintenance to prevent impacts and the potential for impacts to desert tortoises and their habitat. These measures are an integral part of the Proposed Action and Alternatives 1 and 2.

1. A qualified desert tortoise biologist must be present from March 1 through October 30 (active season) in areas that have not been enclosed with tortoise proof fence during surface-disturbing activities to ensure that desert tortoises are not inadvertently harmed, unless the U.S. Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service (FWS) have determined that the presence of a biologist is unnecessary. The biologist shall be on-call from October 16 through March 14 (inactive season) and must check construction areas immediately before construction activities begin at all times. In addition, a qualified desert tortoise biologist will be onsite during any construction within critical habitat. Desert tortoises are generally believed to be inactive if temperatures are consistently in the low 40's at night and do not exceed the upper 50's during the day, and (1) no tortoise movement has been observed for 3 days, (2) tortoises are not expected to be seen for 3 days based on forecast weather, including temperature ranges and rainfall, and (3) no rainfall has occurred for 48 hours.
2. If fence construction occurs during the tortoise active season, a qualified tortoise biologist shall be onsite during construction of the tortoise-proof fence to ensure that no tortoises are harmed. During the active season temporary or permanent tortoise-proof fencing will be required to be installed for all areas of surface disturbing activities prior to the onset of construction activities. If the fence is constructed during the tortoise inactive season, a biologist will thoroughly examine the proposed fence line and burrows for the presence of tortoises no more than 3 days before construction commences.
3. Any desert tortoises or eggs found in the fence line will be relocated offsite by a qualified tortoise biologist in accordance with approved protocol (Desert Tortoise Council 1994, revised 1999). Tortoise burrows that occur immediately outside of the fence alignment that can be avoided by fence construction activities shall be clearly marked to prevent crushing.
4. Permanent fencing to exclude tortoise will be required on the access road from Interstate 15 to the proposed plant site. In addition, a tortoise fence will be constructed around the power plant site. In accordance with current specifications, fencing shall consist of 1-inch-horizontal by 2-inch-vertical mesh. The mesh shall extend at least 18 inches above ground and, where feasible, 6 to 12 inches below ground. In situations where it is not feasible to bury the fence, the lower 6 to 12 inches of the fence shall be bent at a 90-degree angle towards potentially approaching tortoises and covered with cobble or other suitable material to ensure that tortoises or other animals cannot dig

underneath and create gaps that allow passage. Along the access road tortoise undercrossings will be provided at intervals of not greater than 1 mile. It is anticipated that only 2 or 3 undercrossings specifically placed for tortoises will be needed to meet this objective since most of the access road is in terrain that will require frequent culverts for drainage purposes that can also be designed to function as tortoise crossings. BLM will coordinate with FWS staff prior to installation of culverts to determine the most appropriate placement, spacing, and culvert size that will accommodate desert tortoise movement under the road.

5. The operator shall inspect the fencing at least on a quarterly basis and after major precipitation events to ensure zero ground clearance. Any repairs shall be completed within 72 hours from March 15 through October 15, and within 7 days from October 16 through March 14. Monitoring and maintenance shall include regular removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried. The operator shall perform maintenance when needed, including removing trash, sediment accumulation, and other debris. Fencing may be removed upon termination and reclamation of the project, or when it is determined by the BLM and FWS that the fence is no longer necessary.

6. During surface-disturbing activities, tortoise burrows shall be avoided whenever possible. If a tortoise is found onsite during project activities that may result in take of the tortoise (harm, displace, harass, wound, trap, capture, or kill), such activities shall cease until the tortoise moves or is moved. The tortoise shall be moved by a qualified tortoise biologist. All workers shall also be instructed to check underneath all vehicles before moving such vehicles, and also within stockpiled materials. Tortoises often take cover under vehicles and construct burrows in stockpiled material.

7. Construction sites, staging areas, and access routes shall be cleared by a qualified tortoise biologist before the start of construction. The project area shall be surveyed for desert tortoise using survey techniques that provide 100 percent coverage. From March 15 through October 15, the preconstruction clearance shall take place no more than 3 days prior to initiation of construction; from October 16 through March 14, the preconstruction clearance shall take place no more than 10 days prior to initiation of construction. All desert tortoise burrows, and other species' burrows that may be used by tortoises, will be examined to determine whether the burrow is occupied by desert tortoises. Tortoise burrows shall be cleared of tortoises and eggs, and collapsed. Any desert tortoises or eggs found in the fenced area will be removed under the supervision of a qualified tortoise biologist in accordance with FWS protocol (Desert Tortoise Council 1994, revised 1999).

8. The BLM must approve the selected consulting firm/biologist to be used by the applicant to implement the terms and conditions of rights-of-way (ROWs) issued by the BLM. Any biologist and/or firm not previously approved must submit a curriculum vitae and be approved by the BLM before being authorized to represent the BLM in meeting compliance with the terms and conditions of the ROWs. The BLM will have the option of selecting an independent third-party contractor to act as an agent of the BLM Compliance Inspector Contractor. Other personnel may assist with implementing terms

and conditions that involve tortoise handling, monitoring, or surveys, only under direct field supervision by the approved qualified biologist.

9. Tortoises and nests shall be handled and relocated by a qualified tortoise biologist in accordance with FWS-approved protocol (Desert Tortoise Council 1994, revised 1999). Burrows containing tortoises or nests shall be excavated by hand, with hand tools, to allow removal of the tortoise or eggs. Desert tortoises moved during the tortoise inactive season or those in hibernation, regardless of date, must be placed into an adequate burrow; if one is not available, one shall be constructed in accordance with Desert Tortoise Council (1994, revised 1999) criteria. During mild temperature periods in the spring and early fall, tortoises removed from the site shall not necessarily be placed in a burrow. Tortoises and burrows shall only be relocated to federally managed lands. If the responsible federal agency is not the BLM, verbal permission, followed by written concurrence, shall be obtained from BLM and FWS before relocating the tortoise or eggs to lands not managed by the BLM.

10. Tortoises that are moved offsite and released into undisturbed habitat on public land must be placed in the shade of a shrub, in a natural unoccupied burrow similar to the hibernaculum in which it was found, or in an artificially constructed burrow in accordance with an FWS-approved protocol (Desert Tortoise Council 1994, revised 1999).

11. After a project has been fenced and a tortoise clearance completed, if a desert tortoise is encountered in imminent danger, it shall be moved out of harm's way and onto adjacent BLM land by personnel that have completed the training required in Terms and Conditions 8.h of the Desert Tortoise Council (1994, revised 1999) criteria.. If the tortoise cannot be avoided or moved out of harm's way onto BLM land, it shall be placed in a cardboard box or other suitable container and held in a shaded area until BLM personnel can retrieve the tortoise.

12. If possible, overnight parking and storage of equipment and materials, including stockpiling, shall be in previously disturbed areas or areas to be disturbed that have been cleared by a tortoise biologist. If not possible, areas for overnight parking and storage of equipment shall be designated by the tortoise biologist.

13. All vehicular traffic shall be restricted to existing access roads, or those roads approved by the BLM in consultation with the FWS.

14. Project activity areas shall be clearly marked or flagged at the outer boundaries before the onset of construction. All activities shall be confined to designated areas. Blading of vegetation shall occur only to the extent necessary and shall be limited to areas designated for that purpose by the BLM or tortoise biologist.

15. In accordance with the terms and conditions of the Biological Opinion, prior to surface disturbing activities associated with the proposed project, the project proponent shall pay remuneration fees to be deposited into the Lincoln County Land Disturbance Fee Fund (account number 1-801208)(Section 10 account) for compensation of desert tortoise habitat loss. Remuneration fees are described in the Biological Opinion, Condition 5(f). The payments shall be accompanied by a Lincoln County Land Disturbance Payment

Form, and completed by the payee. Payment shall be by certified check or money order payable to Lincoln County Treasurer and delivered to:

Lincoln County Habitat Conservation
Lincoln County Treasurer
Attn: Ms. Cathy Hiatt
P.O. Box 416
Pioche, Nevada 89043
(775) 962-5805

16. Projects resulting in residual impacts shall require the submission of a BLM- and FWS-approved reclamation plan, unless determined by the BLM and FWS that reclamation rehabilitation is not necessary. The reclamation/rehabilitation plan will describe objectives and methods to be used, species of plants and/or seed mixture to be used, time of planting, success standards, and follow-up monitoring. Depending upon the size and location of the project, reclamation could simply involve recontouring; rehabilitation and restriction of access points; or intensive reclamation over the entire area of surface disturbance. The plan shall be prepared within 60 days following completion of the surface disturbance phase of the project. Reclamation shall be addressed on a case-by-case basis.

17. Upon receipt of an application or expression of interest in the expansion of a materials site right-of-way within desert tortoise ACECs, the BLM shall notify the FWS and initiate a 60-day evaluation period. During the evaluation period, the BLM and FWS will consider options to minimize impacts to desert tortoise habitat, such as relocation of areas outside ACECs, other potential sources, and other measures.

18. If a substantial level of disturbance occurs within a desert tortoise ACEC (for example, expansion of materials sites within ACECs), the proponent will rehabilitate an equivalent number of acres with an ACEC in the same recovery unit, within 6 months, or relinquish a similar area back to the BLM. These actions will occur in addition to payment of remuneration fees and other minimization measures in this biological opinion. BLM will ensure that the project proponent will restore 65 acres of critical habitat within the Mormon Mesa ACEC and outside the access road ROW, to offset the permanent loss of 65 acres of critical habitat to roadway improvement and pavement. Restoration will be done within 6 months of completion of construction. Identification of lands to be restored will be determined by BLM in consultation with the FWS.

19. A litter-control program shall be implemented to minimize predation on tortoises by ravens drawn to the project site. This program shall include the use of covered, raven-proof trash receptacles, removal of trash from project areas to the trash receptacles following the close of each work day, and proper disposal of trash in a designated solid waste disposal facility. Appropriate precautions must be taken to prevent litter from blowing out along the road when trash is removed from the site. A litter-control program shall be implemented by the responsible federal agency or their contractor, to minimize predation on tortoises by ravens and other predators drawn to the project.

20. A tortoise-education program shall be presented to all personnel working on the project or activities associated with the project. This program shall be presented by a qualified

tortoise biologist. The program shall include information on the life history of the desert tortoise, legal protection for desert tortoises, penalties for violations of federal and state laws, general tortoise-activity patterns, reporting requirements, measures to protect tortoises, terms and conditions of the Biological Opinion, BLM-issued ROWs, and personal measures that employees can employ to promote the conservation of desert tortoises. The definition of "take" will also be explained. Specific and detailed instructions will be provided on the proper techniques to capture and move tortoises that appear onsite, in accordance with USFWS-approved protocol, and the protocol described under Measure 11 of this document. Currently, the FWS-approved protocol is Desert Tortoise Council (1994, revised 1999). Copies of the Biological Opinion stipulations will be provided to all Compliance Inspection Contractors and biological monitors for the project.

21. The project applicant shall notify the BLM's authorized project officer at least 10 days before initiation of any project. Notification shall be made to the BLM staff in Caliente at (775) 726-8100, or Ely at (775) 289-1800.
22. The BLM's Caliente Field Station (775/726-8100), and the FWS's Southern Nevada Field Office (702/515-5230) must be notified of any desert tortoise death or injury resulting from project implementation by close of business on the following work day. In addition, the FWS's Division of Law Enforcement shall be notified in accordance with reporting requirements.
23. All appropriate Nevada Division of Wildlife (NDOW) permits or letters of authorization shall be acquired prior to handling desert tortoises and their parts, and prior to initiation of any activity that may require handling tortoises.
24. The project proponent must submit a document to the BLM within 30 days of completion of the project, showing the number of acres disturbed; remuneration fees paid; and number of tortoises taken, which includes capture and displacement, killed, injured, and harassed by other means, during project activities covered under the biological opinion. A final report shall be submitted to the FWS's Southern Nevada Field Office in Las Vegas, Nevada, within 90 days of completion of project construction.
25. All projects to be covered under the Biological Opinion shall be reviewed by the BLM's wildlife staff to ensure that appropriate measures have been incorporated into the BLM authorization (for example, material site, land sale, or OHV event) to minimize the potential take of desert tortoise and loss of habitat.
26. The BLM will keep an up-to-date log of all actions taken under consultation; number of acres affected; results of tortoise survey and removal activities (including reported number of desert tortoises injured, killed, or removed from project site); date, rate (per acre adjusted for inflation) and amount of fees paid for each project; and progress of recovery actions. The BLM will provide information to the FWS's Southern Nevada Field Office annually. Annual reports will be due on February 1, for the previous calendar year in which actions were covered under the biological opinion. Information will be cumulative throughout the life of the consultation. Annual reports shall include maps showing the location of actions within ACEC's authorized under the opinion and other information required in the biological opinion.

27. For those actions identified in this biological opinion that require concurrence between the BLM and the FWS, written notification of proposed changes or actions will be made a minimum of 30 days in advance. Both agencies will coordinate to the maximum extent practicable to achieve resolution. This may include informal meetings to discuss proposed actions and reach concurrence, or written correspondence.

28. In accordance with *Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise*, a qualified desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields as determined by the BLM. Proposed project biologists must submit a completed "Desert Tortoise Qualifications Statement" form to the BLM for approval. The biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign, which should include a minimum of 60 days of field experience. All tortoise biologists shall comply with the FWS-approved handling protocol prior to conducting tasks in association with terms and conditions of the biological opinion. In addition, the biologist shall have the ability to recognize tortoise sign and accurately record survey results.

29. A BLM representative(s) will be designated to be responsible for overseeing compliance with the reasonable an prudent measures, terms, and conditions, reporting requirements, and re-initiation requirements jointly agreed to by BLM and FWS. The designated representative shall provide coordination among the permittee, project proponent, the BLM, and the FWS.

30. In the event blasting is required, prior to blasting a 200-foot area around the blasting site will be surveyed for desert tortoises using 100-percent coverage survey techniques. All tortoises found above ground or in pallets within this 200-foot radius of the blasting site will be moved 500 feet from the blasting site. Additionally, tortoises in burrows within 75 feet of the blasting will be placed into an artificial or unoccupied burrow 500 feet from the blasting site. This will prevent tortoises that leave their burrow upon translocation from returning to the blasting site. Tortoises in burrows at a distance of 75 to 200 feet from the blasting site will be left in their burrows. Burrow locations will be flagged and recorded using a GPS unit and burrows will be stuffed with newspapers. Immediately after blasting, newspaper and flagging will be removed.

Appendix H

Noxious Weed Management Plan

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1.0 Introduction and Plan Purpose

Noxious weed control and management will be conducted during development of the Toquop Energy Project (project). This Noxious Weed Management Plan has been developed in accordance with the goals of the Plan of Development for the project and in coordination with the Bureau of Land Management (BLM) Ely and Las Vegas Field Offices.

The purpose and goal of this plan is to provide methods for the management and prevention of the spread of noxious weeds both during and following construction of the project. Monitoring and treatment prior to and during construction and operations will ensure that this goal is achieved.

This plan is applicable to the construction of the project components including improvements on the existing access road, the power plant, the wellfield, the water pipeline, and any other areas of construction disturbance.

The project contractors and subcontractors will be responsible for the successful implementation of this plan. This document will be available on the construction site at all times and all project personnel will be trained in noxious weed management and requirements.

2.0 Noxious Weed Inventory

Control measures will be applied to existing areas of noxious weed infestations in the project area. Noxious weed surveys will be conducted to identify the species, location and extent of existing noxious weeds. A list of weeds for the project area will be developed based on the results of these surveys. State designated noxious weeds for Nevada are provided in Table 1.

TABLE 1
Nevada State Listed Noxious Weeds

Scientific Name	Common Name
Alhagi seudalhagi	Camelthom
Cardaria draba	Hoary cress or whitetop
Carduus nutans	Musk thistle
Centaurea calcitrapa	Purple starthistle
Centaurea diffusa	Diffuse knapweed
Centaurea ibedca	Iberian starthisfe
Centaurea maculosa	Spotted knapweed
Centaurea repens	Russian knapweed
Centaurea solstibalis	Yellow starthisge
Centaurea virgata ssp. s uarrosa	Squarrose kna weed
Chondfilla juncea	Rush skeletonweed
Cicuta douglasii	Western waterhemlock
Cicuta ssp.	Waterhemlock
Cirsium arvense	Canada thistle
Conium maculatum	Poison hemlock
Crupina vulgaris	Common cru ina
Cynoglossum oicinale	Houndstongue
Euphorbia esula	Leafy spurge
Glyc rrhiza lepidota	Wild licorice
Hyoscyamus niger	Black henbane
Hypercium perforatum	Common St. John's wort
Isatis 6nctoda	Dyer's woad
Lepidium laffolium	Perennial pepperweed or tall whitetop
Linaria genisfifolia ssp. dalmatica	Dalmation toadflax
Linaria vulgaris	Yellow toadflax
Lythrum safcada	Purple loosestrife
Onapordum acanthium	Scotch thistle
Potentilla recta	Suffer cinquefoil
Rofppa austriaca	Austrian fieldcress
Salvia aethiopis	Mediterranean sage
Solanum carofnense	Carolina horsenefle
Solanum elaeagnifolium	Silvedeaf nightshade
Sonchus arvensis	Perennial sowthistle
Sorghum halepense	Johnson grass
Sphaerophysa salsula	Austrian peaweed
Taeniatherum caput-medusae	Medusahead
Tamarix ramosissima	Saltcedar or tamarisk
Tnbulus terrestns	Puncturevine

3.0 Noxious Weed Management Guidelines

Noxious weeds can be spread in several ways including vehicles, construction equipment, construction and reclamation materials, livestock, and wildlife. Additionally, soil disturbance greatly increases the weed invasion potential. Implementation of preventative measures to control the spread of noxious weeds is the most cost-effective management approach. Noxious weed controls will be incorporated into each phase of the project development.

3.1 Preventative Measures

The following preventative measures will be used prior to and during construction to prevent the spread of noxious weeds in the project area:

- Any noxious weed infestations identified in the project area will be staked in the field prior to the start of construction or ground clearing activities, and recorded for reference during follow-up noxious weed treatments.
- Identified weed infested areas will be treated prior to construction or ground clearing activities, as appropriate.
- All construction vehicles and equipment will arrive at the work site clean and weed free. Prior to being allowed access to the construction areas, the environmental inspector (EI) will ensure that vehicles and equipment are free of soil and debris capable of transporting noxious weed propagules (seeds, roots, or rhizomes).
- In areas of known infestations, one piece of heavy equipment will be dedicated for clearing activities and topsoil salvage and redistribution, as applicable. High-pressure water truck wash stations will be used to remove seeds, roots, and rhizomes from the equipment and construction vehicles working in weed infested areas, prior to working other areas of the project area.
- In areas where infestations have been identified or noxious weeds noted in the field, the cleared vegetation and salvaged topsoil, where applicable, will be stockpiled adjacent to the area from which they are stripped to eliminate the transport of soil-born noxious weed propagules. During reclamation, any salvaged topsoil, where applicable, from infestation sites will be returned to the area from which it is stripped. Any vegetative material cleared from infestation sites will be burned, if appropriate permits can be obtained, or redistributed across the area from which it is stripped.
- Contractors and other project-related personnel will be limited to driving only in designated construction zones.
- Reclamation of disturbed lands will be implemented immediately following construction, as outlined in the project's Restoration Plan (Appendix B of the POD).

- Continuing revegetation efforts will ensure adequate vegetative cover to minimize the invasion of noxious weeds. Reclamation seed mixes will be certified as weed free.
- Straw bales used on the project for sediment barrier installations or mulch distribution will be certified as weed free.
- Post-construction monitoring and treatment of noxious weeds will be conducted in accordance with those procedures and timelines described in Section 3.2 (Treatment Methods) and Section 4.0 (Monitoring). Treatments and monitoring will continue until (INSERT DATE) or (INSERT EVENT – i.e., weeds are eradicated or under control as feasible).
- Equipment will not be sprayed with pre-emergent chemicals as a preventative measure, as these chemicals target a wide range of vegetation.

3.2 Treatment Methods

Control measures will rely primarily on herbicide application both prior to and following construction, as applicable. Herbicide applications will be conducted to minimize impacts to the surrounding vegetation and sensitive resources.

Chemical treatments will be based on species-specific and site-specific conditions and will be coordinated with the BLM.

3.2.1 Pre-Construction Herbicide Treatment

Prior to construction activities that disturb soils and vegetation, noxious weeds will be treated with chemical herbicides or other appropriate methods at least two weeks prior to ground-disturbing activities, where possible. Only approved, short-lived herbicides will be used for pre-construction treatment of noxious weeds. The use of herbicides that break down and detoxify relatively rapidly is necessary to prevent adverse effects on germination and growth of reseeded species.

Applicable permits for use of herbicides will be obtained as necessary.

3.2.2 Post-Construction Herbicide Treatment

Post-construction treatment of noxious weeds will consist of herbicide applications and a follow-up seeding program. Supplemental seeding will be based on the criteria in the project's Restoration Plan (Appendix B of the POD). The timing of subsequent revegetation efforts will be based on the residual of the selected herbicide.

4.0 Monitoring

Upon completion of project construction, the project area will be monitored at periodic intervals for noxious weeds. Surveys will be conducted as early in the year as feasible to identify and treat noxious weeds before they produce seed. Areas where post-construction noxious weed surveys will be conducted include: 1) invasion or infestation sites within the project area that are identified during pre-construction surveys, 2) sites adjacent to existing noxious weed infestations, 3) areas previously treated for noxious weeds, and 4) all areas that were disturbed during construction. Field survey information, including species identified, locations of infestations, and extent of infestations, will be used to determine management requirements.

5.0 Herbicide Application, Handling, Spills, and Cleanup

5.1 Herbicide Application, Handling, and Record Keeping

Herbicide use and handling will be conducted in compliance with any required regulatory permits and with all federal, state, and local laws on proper use, storage, and disposal. Herbicide applications will be conducted by an independent, licensed contractor in accordance with all applicable laws and regulations and EPA label directions.

Equipment will be properly calibrated and periodically checked for calibration to ensure proper application rates. Vehicle-mounted sprayers (e.g., handgun, boom, and injector) or hand application methods (e.g., backpack spraying) may be used. Herbicide applications will be suspended when weather conditions are not appropriate, including high winds (> eight miles per hour) or eminent precipitation (rain, snow or ice).

All herbicide equipment and containers will be inspected daily for leaks. Herbicide containers will be disposed in accordance with applicable laws and regulations.

Herbicide treatments will only occur during appropriate weather conditions including dry conditions (no current or eminent) precipitation, and wind speed less than 5 miles per hour.

The Nevada Department of Agriculture Pesticide Application Report will be completed for all herbicide applications. Herbicide treatment record keeping will include individual records for each treatment indicating the following information:

- Date of herbicide treatments
- Start/finish temperature
- Start/finish wind velocity
- Start/finish
- Start/finish time
- Applicator or supervisor's name
- Applicator license number and expiration date
- Location and boundaries of treatment areas (Latitude/longitude, UTM) (include location map with treatment areas)
- County location
- Size of treatment area (number of acres)
- Active ingredient, brand and/ or product
- EPA registration number
- Total amount of product and application rate/acre
- Target weed species treated
- Restricted reentry interval

Herbicide treatment records will be conveyed to the BLM and also to the State in accordance with State law.

5.2 Herbicide Spill Control and Reporting

Herbicide contractors will have readily available copies of the EPA Material Safety Data Sheets (MSDS) for the herbicides being used. In the event of a herbicide spill, immediate cleanup will be necessary. Hazardous materials spill control, clean up, and reporting procedures are applicable to herbicide spills and are described in the Construction Spill Prevention and Containment Plan, Appendix E of the Plan of Development.

Appendix I

Cultural Resources Programmatic Agreement

Programmatic Agreement Among the USDI Bureau of Land Management, Nevada and the Nevada State Historic Preservation Officer Regarding the Toquop Energy Project

PROGRAMMATIC AGREEMENT
AMONG
THE USDI BUREAU OF LAND MANAGEMENT, NEVADA
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE TOQUOP ENERGY PROJECT

WHEREAS, the BLM is considering an application for rights of ways and a proposed land exchange for the Toquop Energy Project proposed by Toquop Energy, Inc., ("Toquop") in southern Lincoln County, Nevada, and BLM is preparing an Environmental Impact Statement for this proposed project.

WHEREAS, the BLM has determined that if it approves this application and/or the land exchange, the construction and installation of the Toquop Energy Project (the undertaking) may have an effect upon properties eligible for inclusion in the National Register of Historic Places (NRHP), and has consulted with the Nevada State Historic Preservation Officer (SHPO) pursuant to the Nevada BLM/SHPO Protocol for implementing Section 106 of the National Historic Preservation Act;

WHEREAS, Toquop Energy, Inc., the operator of Toquop Energy Project, participated in the consultation and has been invited to concur in this Programmatic Agreement, and

WHEREAS, this Programmatic Agreement covers all aspects of the planning, construction, and installation of the undertaking, including but not limited to, power and communication transmission systems, generation stations, staging areas and access roads, the construction zone, extra work areas and all ancillary facilities;

NOW THEREFORE, the parties agree that development of the Toquop Energy Project, if it is approved by BLM, shall be administered in accordance with the following stipulations to ensure that historic and prehistoric properties will be treated to avoid or mitigate effects to the extent practicable, regardless of surface ownership, and to satisfy BLM Section 106 responsibilities for all aspects of the undertaking.

AREA OF POTENTIAL EFFECT

The Area of Potential Effect (APE) shall be defined to include all potential direct and indirect effects to cultural resources and Traditional Cultural Properties from any Toquop Energy Project activities associated with the undertaking, if it is approved by BLM. The initial specific APE is described and mapped in Appendix A. At the discretion of the BLM, the APE may be amended as needed and any amendments will be handled under the terms of this agreement.

STIPULATIONS

A. Identification

1. BLM shall identify interested persons and tribes pursuant to the BLM/SHPO Protocol and involve them, as appropriate, in all activities associated with the undertaking.

2. The BLM, in consultation with the SHPO, shall ensure that Toquop funds an appropriate cultural resource inventory, including reports, of the APE for all activity areas, or portions thereof, in a manner consistent with the BLM/SHPO Protocol.

3. Required inventory shall be completed regardless of the ownership (public or private) of the lands involved and Toquop shall be responsible for gaining access to privately held lands. Toquop's failure to gain access to private lands will result in a determination of adverse effect for the undertaking.

4. When found, previously recorded sites will be re-recorded using Intermountain Antiquities Computer System (IMACS) site record forms.

5. No artifacts will be collected during inventory activities.

6. Isolated artifacts and features will be documented in tabular form using the description, land form, legal location, and UTM.

B. Eligibility

1. The BLM, in consultation with the SHPO, shall ensure that all cultural resources located within the APE of an activity area are evaluated for eligibility to the NRHP prior to the initiation of activities that may affect cultural properties. Eligibility will be determined in a manner compatible with BLM/SHPO Protocol.

    a. In addition, the BLM shall consult with appropriate tribes to identify properties considered to be of traditional religious and cultural importance.

2. To the extent practicable, eligibility determinations shall be based on inventory information. If the information gathered in the inventory is inadequate to determine eligibility, Toquop, through its contractors may need to conduct limited subsurface testing, or other evaluative techniques, to determine eligibility. Subject to approval by the BLM, in consultation with the SHPO, evaluative testing is intended to provide the minimum data necessary to define the nature, density and distribution of materials in potential historic properties, to make final evaluations of eligibility, and to devise treatment options responsive to the information potential of the property. Any such testing shall be limited to disturbing no more than 25% of the surface area of the resource. Should BLM disapprove the applications for the Toquop project, or should Toquop abandon the project and withdraw its applications prior to BLM approval, then any further evaluative testing shall cease, except for completing existing or already authorized work that is ongoing as of the date of withdrawal or disapproval.

3. If the BLM and SHPO disagree regarding eligibility, the BLM shall seek a formal determination of eligibility from the Keeper of the National Register in accordance with

36 CFR 800.4 (dated 1986). The Keeper's determination will be considered final.

C. Treatment

1. In avoiding or mitigating effects, the BLM, in consultation with SHPO and interested persons, shall determine the precise nature of effects to historic properties identified in the APE if the Toquop Project is approved by BLM. As a condition to any grant of rights of way or other BLM action to approve the Toquop Project, appropriate treatment shall be required prior to construction or operation of the Project. If the Project is approved by BLM, all treatment shall be done in a manner consistent with the BLM/SHPO Protocol.

2. If the Toquop Project is approved by BLM, to the extent practicable, BLM, in consultation with the SHPO, shall ensure that Toquop avoids effects to historic properties through project design, or redesign, relocation of facilities, or by other means in a manner consistent with the BLM/SHPO Protocol.

3. If the Toquop Project is approved by BLM, when avoidance is not feasible, the BLM, in consultation with SHPO, Toquop and interested persons, shall ensure that Toquop develops an appropriate treatment plan designed to lessen or mitigate project-related effects to historic properties. The treatment plan shall be a condition to the right of way, if the right of way is approved by BLM. For properties eligible under criteria (a) through (c) (36 CFR 60.4), mitigation, other than data recovery, may be considered in the treatment plan (e.g. HABS/HAER recordation, oral history, historic markers, exhibits, interpretive brochures or publications, etc.). Where appropriate, treatment plans shall include provisions (content and number of copies) for a publication for the general public.

4. If the Toquop Project is approved by BLM, when data recovery is proposed and required as a condition of approval, the BLM, in consultation with the SHPO, shall ensure that Toquop develops a data recovery plan that is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-37) and *Treatment of Historic Properties: A Handbook* (Council 1980).

6. If the Toquop Project is approved by BLM, upon completion of the consultation process, the BLM shall require as a condition of approval and ensure that Toquop, through its contractor, implements the fieldwork portions of any final treatment plan prior to initiating any activities that may affect historic properties

7. The BLM shall ensure that all records and materials resulting from identification and treatment efforts are curated in accordance with 36 CFR 79 in BLM-approved facilities in Nevada. All materials collected will be maintained in accordance with 36 CFR 79 until the final treatment report is complete and collections are curated or returned to their owners.

8. The BLM shall ensure that all final archeological reports resulting from actions pursuant to this Agreement will be provided to the SHPO and the Advisory Council on Historic Preservation (Council), and made available to other interested persons. All such reports shall be consistent with contemporary professional standards, and the Department of Interior's Formal Standards for Final Reports of Data Recovery Programs (42FR 5377-79).

D. Discovery Situations

1. If the Toquop Project is approved by BLM, and authorization has been granted for Toquop to proceed to construct or operate the undertaking, the following requirements shall apply. When cultural resources are discovered, undertaking-related activities within 100 meters of the discovery will cease immediately and Toquop shall notify the BLM authorized officer. Prior to initiating any activities within the APE, Toquop will provide the parties with a list of, and schedule for, the Toquop employees empowered to halt all activities in discovery situation and who will be responsible for notifying BLM of any discoveries. At least one of these employees will be present during all Toquop's activities.

(a) The BLM shall notify the SHPO and consider the SHPO's initial comments on the discovery. Within two working days of the discovery, the BLM shall notify Toquop, the SHPO and identified interested persons, of the BLM's decision to either allow undertaking-related activities to proceed or to require mitigation.

(b) If, in consultation with the SHPO, BLM determines that mitigation is appropriate, the BLM shall solicit comments from the SHPO and interested persons, as appropriate, to develop mitigating measures. The SHPO and other interested persons, as appropriate, will be allowed two working days to provide BLM with comments to be considered when the BLM makes a decision on extent of mitigative efforts. BLM will determine the mitigation required; within seven working days of BLM's notification to Toquop of the need for mitigation, BLM will notify the SHPO and appropriate interested persons of its decision and ensure that such mitigative actions are implemented.

(c) The BLM shall ensure that reports of mitigation efforts for discovery situations are completed in a timely manner and conform to the Department of Interior's Formal Standards for Final Reports of Data Recovery Program (42 FR 5377-79). Drafts of such reports shall be submitted to the SHPO for a 30-day review and comment as stipulated in H.2. Final reports shall be submitted to the SHPO, Council and interested persons for informational purposes.

(d) Toquop's activities in the area of the discovery will be halted until Toquop is notified by the BLM that mitigation is complete and activities can resume.

E. Other Considerations

1. The BLM shall ensure that all stipulations of this Agreement are carried out by the BLM, SHPO, Toquop, and all of its contractors or other personnel.

2. The BLM shall ensure that historic, architectural, and archaeological work conducted pursuant to this Agreement is carried out by, or under the direct supervision of persons meeting qualifications set forth in the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) and who have been permitted for such work on public lands, by the BLM.

3. Toquop, in cooperation with the BLM and the SHPO, shall ensure that all its personnel, and all the personnel of its contractors, are directed not to engage in the illegal collection of historic and prehistoric materials. Toquop shall cooperate with the BLM to ensure compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470) on public lands and with Nevada statute NRS 383 for state and private lands.

4. Toquop shall bear the expense of identification, evaluation, and treatment of all cultural properties directly or indirectly affected by Toquop Energy Project-related activity. Such costs shall include, but not be limited to, pre-field planning, field work, post-fieldwork analysis, research and report preparation, interim and summary report preparation, publications for the general public, and the cost of curating project documentation and artifact collections. It is understood that BLM may decide not to approve the right of way applications or the land exchange for the Toquop Energy Project. Prior to any BLM decision to approve or disapprove the applications, Toquop has agreed to bear the expense of the identication and evaluation of cultural properties required as part of the cultural resources surveys necessary to obtain information for the Environmental Impact Statement. If BLM disapproves the applications, or if Toquop abandons or withdraws its pending application for right of way prior to a BLM decision, then Toquop shall bear no further expense for evaluation or treatment for any cultural properties except for completing existing or already authorized work that is ongoing as of the date of withdrawal or disapproval.

5. Identification, evaluation and treatment efforts may extend beyond the geographic limits of the right-of-way when the resources being considered extend beyond the right-of-way. No identification, evaluation or treatment efforts will occur beyond that necessary to gather data for the completion of the Section 106 process as agreed, prior to BLM's decision to approve or disapprove the submitted applications. If BLM disapprove the applications, or if the applications are withdrawn or abandoned, then no further identification, evaluation or treatment will occur except for completing existing or already authorized work that is ongoing as of the date of withdrawal or disapproval. .

6. Traditional Cultural Properties (TCPs) will be identified, evaluated, and treated through consultation with appropriate interested persons. Toquop can contract for data gathering to assist the BLM in identifying, evaluating and treating TCPs. However, formal consultation, as needed, will be done by the BLM. TCP identification, evaluation

and treatment efforts shall be consistent with BLM Manual 8160 and its associated handbook.

7. Information on the location and nature of all cultural resources, and all information considered to be proprietary by tribes, will be held confidential to the extent provided by the NHPA, NAGPRA, and ARPA.

8. The BLM shall ensure that any human remains, grave goods, items of cultural patrimony, and sacred objects, encountered during the undertaking are treated with the respect due such materials. In coordination with this Agreement, human remains and associated grave goods found on public land will be handled according to the provisions of the Native American Graves Protection Act (NAGPRA) and its implementing regulations (43 CFR 10). Human remains and associated grave goods found on state or private land will be handled according to the provisions of Nevada statute NRS 383.

9. The BLM and the Nevada State Historic Preservation Office (SHPO) have consulted formally and have discussed informally about various aspects of the Toquop Energy Project. In relation to the land exchange included as part of the Proposed Action (Appendix A), the BLM and SHPO have consulted and agreed that the area of Section 36, T.11S, R.69E, has been subject to cultural resources inventory adequate to identify the likelihood of historic properties, pending determination of whether any Traditional Cultural Properties are present. The BLM anticipates consultation with SHPO regarding a BLM proposal to subject Section 4, T.10S, R.69E to a Class 2-level cultural resources inventory. The BLM expects that the remainder of the proposed and alternative alignments, including those areas yet to be defined, will be subjected to Class 3 cultural resources inventory.

F. Monitoring

1. The BLM and the SHPO may monitor actions carried out pursuant to this Agreement.
2. Any areas that the BLM, in consultation with the SHPO, identifies as sensitive will be monitored by an appropriate professional or tribal representative during construction activities that may impact the area, if the applications are approved by BLM. Treatment Plans will contain monitoring plans as needed. Monitors shall be empowered to stop work to protect resources.

G. Notices to Proceed

If BLM decides to approve the submitted applications, the right of ways issued under these applications shall provide for the issuance of Notices to Proceed. Notices to Proceed (NTP) may be issued by the BLM to Toquop for individual construction activities as defined by Toquop in its Construction Plan, under any of the following conditions:

(a) the BLM and SHPO have determined that there are no cultural resources within the APE for the construction segment;

(b) the BLM and SHPO have determined that there are no historic properties within the APE for the construction segment; or

(c) the BLM after consultation with the SHPO and interested persons has implemented an adequate treatment plan for the construction segment, and

(1) the fieldwork phase of the treatment option has been completed;

(2) the BLM has accepted a summary description of the fieldwork performed and a reporting schedule for that work; and

(3) Toquop has posted a surety as stipulated in I. below for post-fieldwork costs of the treatment plan.

H. Time Frames

1. Reports: The BLM shall review and comment on any report submitted by Toquop within 30 calendar days of receipt.

2. Consultation with Interested Parties: Prior to SHPO consultation, the BLM shall submit the results of all identification and evaluation efforts, including discovery situations, and treatment plans to identified interested persons for a 30-day review and comment period.

3. SHPO Consultation: The BLM shall submit the results of all identification and evaluation efforts, including discovery situations, and treatment plans to the SHPO for a 30-day review and comment period.

4. If any party to the agreement, or other interested person fails to respond to the BLM within 30 days of the receipt of a submission, the BLM shall presume concurrence with the BLM's findings and recommendations as detailed in the submission and proceed accordingly.

5. Reports: A draft final report of all identification, evaluation, treatment or other mitigative activities will be due to the BLM within nine (9) months after the completion of the fieldwork associated with the activity, unless otherwise negotiated.

6. Curation: All records, photographs, maps, field notes, artifacts, and other materials collected or developed for any identification, evaluation, or treatment activities will be curated in a facility approved by the BLM at the time the final report associated with that activity is accepted by the BLM, unless materials and artifacts must be returned to the owner.

I. Surety Bonds

1. If BLM decides to approve the applications for rights of ways, the terms of the rights of way(s) issued by BLM shall provide for the posting of sureties after such approval for the protection of cultural properties, as set forth below. If BLM decides to disapprove the application, then no surety shall be provided. Under the terms of any BLM approval of the proposed undertaking, Toquop will post a surety with the BLM in an amount sufficient to cover all post-fieldwork costs associated with implementing a treatment plan or other mitigative activities, as negotiated by Toquop when they contract for services in support of this Agreement. Such costs may include, but are not limited to post-field analyses, research and report preparation, interim and summary reports preparation, and the curation of project documentation and artifact collections in a BLM-approved curation facility. The surety shall be posted prior to BLM issuing a notice to proceed.

2. The surety posted as provided in Section I (1) above shall be subject to forfeiture if the post-fieldwork tasks are not completed within the time period established by the treatment option selected; provided, however, that the BLM and Toquop may agree to extend any such time periods. The BLM shall notify Toquop that the surety is subject to forfeiture and shall allow Toquop 15 days to respond before action is taken to forfeit the surety.

3. The surety shall be released, in whole or in part, as specific post-fieldwork tasks are completed and accepted by the BLM.

J. Dispute Resolution

1. If any party to this agreement, or an interested person, objects to any activities proposed pursuant to the terms of this agreement, the BLM shall consult with the objecting party and the SHPO to resolve the issue. If the objection cannot be resolved at the local level, the BLM shall request the assistance of the Council to help resolve the objection.

2. The Parties may continue all actions under this Agreement that are not the subject of the dispute.

K. Amendment

Any party to this Agreement may request that this Agreement be amended, whereupon the Parties will consult to consider such amendment.

L. Termination

Any party to this Agreement may terminate the Agreement by providing thirty (30) days notice to the other Parties, provided that the Parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

M. Execution

1. Execution and implementation of this Agreement evidences that the Parties have satisfied their Section 106 responsibilities for all actions associated with the construction and installation of Toquop Energy Project.

2. In the event that the Parties do not carry out the requirements of this Agreement or it is terminated, the BLM will comply with the provisions of the BLM/SHPO Protocol.

3. This Agreement shall become effective on the date of the last signature below, and shall remain in effect until terminated as provided in Stipulation L, or until undertaking is completed, or three years from the effective date.

CONSULTING PARTIES:

BUREAU OF LAND MANAGEMENT, NEVADA

By: Date: 2/8/02

Title: Ely Field Manager

NEVADA STATE HISTORIC PRESERVATION OFFICE

By: Alice M Baldrica Date: 2/19/02

Title: Deputy SHPO

CONCURRING PARTY:
TOQUOP ENERGY, INC.

By: Date: 02/6/02

Title: Its Authorized Agent
Christopher W. Garrett

APPENDIX A: AREA OF POTENTIAL EFFECT

The Toquop Energy Project includes three alternatives other than the No Action Alternate. These are discussed briefly below and are depicted in the attached figures.

The Proposed Action (or Southern Alternative) includes improvements (paving, widening, some straightening) to12.2 miles of existing Entry Road extending from Interstate Highway 15 in Clark County and into a proposed plant site in Lincoln County, Nevada; a land exchange of the federally-administered area of Section 36, T.11S, R.69E (Proposed Plant Site) in return for the privately-owned Section 9, T.20N, R.23E, in the Pah Rah Range in Washoe County, Nevada; construction of a natural gas-fired, water-cooled electrical generating facility in the Proposed Plant Site; construction of an underground Water Pipeline and related utility corridor to carry cooling water from Tule Basin to the proposed power plant site; and drilling of several water wells in the Well Field at locations that are yet to be determined, with connections between each well and the north end of the Water Pipeline within Section 4, T.9S, R.69E. However, the wells and their pipeline locations cannot be determined at present (November 2001) pending accumulation of additional information. The Proposed Action includes connections to both an existing natural gas pipeline (Kern River) as well as an existing electrical transmission line (Navajo-McCullough) within Section 36.

Alternative 1 is identical to the Proposed Action except for utilization of an eastern alignment for the Water Pipeline. This route is slightly longer (12.4 miles) and involves crossing Toquop Wash in order to avoid a nearby Area of Critical Environmental Concern.

Alternative 2 would involve development of the electrical generating plant in Section 4, T.10S, R.69E, which would be substituted as the federally-owned component utilized for the land exchange to acquire the privately-owned area of Section 9, T.20N, R.23E, in the Pah Rah Range in Washoe County, Nevada. The southern portion of the Entry Road would stay the same into Section 36, T.11S, R.69E, and would extend northward to Section 4 following the eastern alignment discussed in Alternative 1. The requirements for water wells in the Tule Desert remain the same, as would the connections between those wells and the alternative electrical generating plant site. The greatest difference would be in the requirement to connect between the electrical generating plant location in Section 4 and the natural gas supply and electrical transmission lines to the south. This would include improvements such as widening and paving along an additional 13.4 miles of road, as well as construction of 13.2 miles of buried gas line and an electrical transmission interconnection.

Appendix J

Storm Water Pollution Prevention Plan

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1.0 Introduction

1.1 Purpose

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared to control and manage pollutants in storm water runoff during construction activities for the Toquop Energy Facility. This plan meets the National Pollution Discharge Elimination System (NPDES) Storm Water Construction Permit requirements. This permit will be obtained from the Nevada Division of Environmental Protection prior to initiation of construction activities.

Best management practices (BMPs), including typical structural and non structural sediment controls and management practices, maintenance procedures, and periodic inspections of construction areas and equipment storage facilities will be implemented to control potential pollutants in storm water discharges during construction. Final stabilization and restoration of the project area after construction will be conducted in accordance with the procedures described in the Plan of Development and the Restoration Plan.

This SWPPP contains the following elements:

- Site description
- Site map
- Controls and BMPs for storm water pollution prevention, including erosion control and stabilization
- Inspection and maintenance procedures

This SWPPP has been structured to address each of these areas. This plan will be a working document addressing the needs of construction of the Toquop Energy Facility. As construction proceeds, it is possible that modifications to the plan may be necessary. The SWPPP will be amended if: 1) there are changes in design, construction, operations, or maintenance that have a significant effect on the discharge of storm water from the site; or 2) inspections indicate measures provided in the SWPPP are not effective in controlling pollutants in storm water discharges from the site, and additional measures must be implemented.

2.0 Site Description

The site description includes the following elements:

- A description of construction activities
- Estimates of the total affected area of the site

2.1 Description of Construction Activities

Construction activities for the Toquop Energy Facility will include the following:

- Site clearing and preparation, including erosion/sedimentation control
- Site access and infrastructure road development
- Power plant, pipeline and wellfield construction
- Cleanup
- Equipment startup and testing

The first step in the construction process will be site preparation. The existing access road will be improved to provide for ingress/egress and access for construction equipment. Site preparation for the power plant site will consist of some clearing and grubbing, followed by grading and leveling. As the site is characteristically flat desert, minimal grading and leveling will be necessary. After construction is complete, the site will be contoured and stabilized to minimize erosion potential.

2.2 Affected Areas

The project site consists of the following components: access road, power plant site, water supply pipeline, and wellfield. Projected temporary and permanent impact areas by component are presented in Table 1. Additional site information is described in the Environmental Impact Statement document.

TABLE 1
Land in Clark County and Lincoln County Affected by the Access Road

	Clark County (acres)	Lincoln County (acres)	Total (acres)
Construction right-of-way for access road	89	157	246
Existing access road	10	20	30
Net new construction right-of-way disturbance	79[a]	137[b]	216
Staging areas	0	20[a]	20
Long-term right-of-way for access road	50	88	138
Net new permanent disturbance within long-term right-of-way[c]	23	42	65

[a] All within the Mormon Mesa ACEC

[b] 123 acres within the Mormon Mesa ACEC

[c] Except for these acres, all other lands disturbed as a result of project activities in the construction right-of-way, permanent right-of-way, and staging areas would be reclaimed.

3.0 Best Management Practices (BMPs) for Storm Water Pollution Prevention

This section contains a description of appropriate controls and measures to be implemented at the construction site. The description of controls includes the following elements:

- Erosion and sediment controls, including structural and nonstructural practices
- Material handling and spill prevention

3.1 Erosion and Sediment Controls

Erosion and sediment controls can be either structural or non-structural. Practices that are considered structural include those that minimize erosion and sediment transport. Examples of these include straw bales, silt fences, earth dikes, drainage swales, sediment traps, and sediment basins. Practices that are non-structural are those associated with minimization of surface soil disturbance, stabilization, including geotextiles, crushed stone, crushed stone surfacing, protection of trees, and preservation of mature vegetation.

3.1.1 Structural Controls

Structural controls that may be used to control the quality of the storm water at the site are listed in Table 2. Structural controls may include silt fencing, check dams, straw bales, and inlet protection. Final locations for controls will be determined prior to the start of construction.

3.1.2 Non-Structural Controls

Non-structural controls that may be implemented at the site are listed in Table 3. These controls may include temporary and permanent seeding, if practical, mulching, minimization of impacts, and preservation of natural vegetation, where possible. Final stabilization requirements, including recommended seeding mixtures, are described in the Restoration Plan.

TABLE 2
Structural Control Measures

Control Measure	Location	Description of Control Measure
Silt fencing	Along the downstream side of disturbed areas.	Silt fencing consists of posts with filter fabric stretched across the posts. The lower end of the fence is vertically trenched and covered with backfill. This prevents water from passing by the fence without being filtered. The fabric allows for the water to pass offsite, while retaining the sediment onsite.
Check dams	Where the grade change is more than 2 percent.	A check dam is a small, temporary dam constructed across a drainage ditch or channel. Its purpose is to slow the speed of

TABLE 2
Structural Control Measures

Control Measure	Location	Description of Control Measure
		the concentrated flows. The reduced runoff speed will result in less erosion in the channel and allow the sediment to settle out. The check dams can be built with materials such as straw bales, rock, timber, or other material that will retain water.
Straw bales	Installed around areas requiring protection such as undisturbed native vegetation. May be used instead of silt fence, or to form temporary containment.	Straw bales work much like silt fencing. They can be used to form a barrier or redirect water. They slow water flow, which results in less erosion and some settling. Unlike silt fences, straw bales do not allow water to flow through freely, thus they are used where detention, not just filtration, is necessary.
Construction entrance/exit	Located at entrances/exits from the construction site. The exact locations will be determined by the contractor.	The purpose is to reduce tracking of soil off the site. This control measure is usually constructed of fabric and large stone. The fabric is laid down on the soil and the rock is placed on top of the fabric. The rough surface will shake and pull the soil off the tires.
Inlet protection	Located around inlet areas to natural or artificial water bodies.	Filtering material placed around an inlet to a receiving stream to trap sediment. It can be composed of gravel, stone with a wire mesh filter, block and gravel, or straw bales.

TABLE 3
Non-Structural Control Measures

Control Measure	Location	Description of Control Measure
Temporary seeding (if feasible based on site conditions)	Where practical. Disturbed areas that will remain untouched for several weeks.	Seeding a short-term vegetative cover on disturbed areas.
Mulching	On slopes steeper than 2:1.	Temporary soil stabilization or erosion control practice where materials such as grass, wood chips, hay, etc. are placed on the soil surface.
Preservation of natural vegetation	Where practical.	Wherever possible, existing vegetation should be retained. It minimizes erosion potential and protects water quality.
Permanent seeding (if feasible based on site conditions)	Where practical. On disturbed areas once construction is complete.	Provides stabilization of the soil and reduces erosion.

Final Site Stabilization

Final stabilization will consist of grading and stabilization of all disturbed areas. Procedures for final site stabilization after construction and long-term management measures are provided in the Restoration Plan, Appendix B of the POD.

3.2 Other Controls

3.2.1 Employee Training

A copy of this plan will be on site and available at all times during construction. The contractor will ensure that all subcontractors are aware of the SWPPP requirements and compliance measures.

3.2.2 General Controls

Specific erosion and stabilization measures to be implemented for final site restoration are described in the Restoration Plan. The following erosion and stabilization controls may be implemented at the site during construction:

1. All disturbed soil areas will be stabilized. All slopes greater than 3:1 will be stabilized with excelsior blankets or other appropriate materials. This is dependent on the length, exposure, and texture of the soils on the slope.
2. Sidehill slopes will be furrow-contoured whenever equipment is available that can do so. Otherwise, the final grading will be performed in a manner that will result in tracks and depressions contoured across the slope instead of down the "fall-line." This will not only minimize wind erosion, but will also "roughen" the earth to provide a microclimate of wind protection for new plants, and will help conserve precipitation for use in growth of new seed. This results in a reduction of sediment erosion.
3. Disturbed soils will be stabilized as soon as practical upon temporary or permanent construction completion.
4. Disturbance to existing vegetation will be minimized.
5. Construction equipment and materials will be stored in the temporary construction staging areas, as designated in final construction drawings.

4.0 Inspection and Maintenance Procedures

4.1 Inspection Requirements for Sites During Construction

An inspection of the site during construction activities will be performed at least every 14 days and after precipitation events that may result in surface erosion. The inspection will consist of a review of the construction site perimeter, disturbed areas, and areas used for material storage that are exposed to precipitation. These areas will be reviewed for potential pollutants entering storm water runoff. The controls identified in Section 3 will be inspected to ensure they are being implemented properly. Any maintenance activities required to be implemented to assure the effectiveness of controls will be performed a minimum of 14 days after the inspection.

The SWPPP will be revised to incorporate any changes necessary as a result of the inspections. Changes that affect the description of pollutant sources or the pollutant prevention control measures must be made to the SWPPP within 7 days of the inspection.

A record of inspections and maintenance actions will be kept at the site. Uncontrolled releases of mud or muddy water, or measurable quantities of sediment found off the site, will be recorded with a brief explanation as to the measures taken to prevent future releases as well as any maintenance measure taken to clean up the sediment.

Inspections will be the responsibility of the construction manager.

4.2 Inspection Requirements Prior to Final Stabilization

Post-construction inspections to determine stabilization efficacy will occur at a frequency described in the Restoration Plan. A record of these inspections will be kept onsite.

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